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## GENERALIZED INTERSTITIAL EMPHYSEMA AND SPONTANEOUS PNEUMOTHORAX

### AS COMPLICATIONS OF BRONCHOPNEUMONIA


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In the recent epidemic of influenza and bronchopneumonia at Camp Lewis, extensive subcutaneous and interstitial emphysema has occurred in nine patients as a complication of bronchopneumonia. The clinical picture of this emphysema, extending up over the neck, face and scalp, and down over the chest and trunk to the pelvis, and even to the external genitalia, is of such rarity and interest that the cases are here reported. Spontaneous pneumothorax has developed in two patients having extensive bronchopneumonia. That there is a relationship between these two conditions and that they are produced by similar pathologic processes has seemed likely. One case, in fact, presented, at different times, both of these complications. In this paper we are presenting an explanation of the mechanics of these unusual complications.

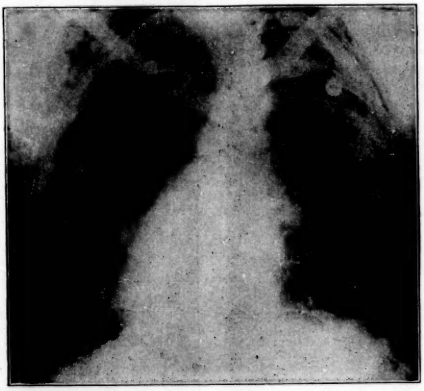

Fig. 1.—Chest in extreme generalized emphysema. Bronchopneumonia of entire right lung. Note lack of pulmonary detail due to air in subcutaneous tissues. Marked air dissection in both axillae.

In each instance, the diagnosis of our cases of bronchopneumonia has been corroborated by roentgenography, and, in fatal cases, by necropsy. Early in the epidemic it was recognized that the type of pneumonia with which we were dealing was not the type that is usually found in vigorous young adults, characterized by an acute onset with a chill followed by fever and rapid respiration. The clinical picture has, however, been one of a fairly set type. The usual onset is with general malaise over a period of from twenty-four to forty-eight hours, more or less diffuse body pains, aching joints, cough and chilliness. On admission, as a rule, the patients appeared only moderately ill. The initial temperature was rarely over 101 F. The physical signs in the lungs were often scant, so much so in some cases that they were recognized as definite pneumonias by the ward surgeons only after they had been in the hospital for from twenty-four to forty-eight hours. At this time definite lung findings were usually present, such as impaired resonance or dulness over the affected part, with either harsh or diminished breath sounds and, on inspiration, showers of fine, moist râles. A discussion of the physical signs and the diagnosis of the type of pneumonia occurring in this epidemic will be given in a subsequent paper.

After three or four days in the hospital, the greater proportion of the patients showed a marked improvement and went on to an uninterrupted recovery. In the other cases at the same time there was a tremendous extension of the process, and the condition at once became critical. It was among the latter group that the occurrence of interstitial emphysema and spontaneous pneumothorax were noted.

That our cases of pneumonia have been milder than the cases in other camps is evidenced by our mortality rate, which, at the present writing, is 9.22 per cent., or 157 deaths.

### LUNG INVOLVEMENT

The patients developing emphysema or pneumothorax, for the most part, had extensive lung involvement as is shown by Table 1.

In Table 2 is shown the extent of the emphysema, together with the prominent symptoms that were apparently associated with its development. The severity of the paroxysms of cough in these cases was well demonstrated by the occurrence in one case of a rupture of the rectus muscles, and in several other cases by definite hemorrhages into these muscles. A sudden severe paroxysm of cough with pain in the chest and the spitting up of frothy, bloody sputum seemed in several cases to mark the onset of the emphysema.

Two other cases of emphysema occurred that have not been included in Table 2. One of these presented emphysema as a complication after a thoracotomy for empyema, and the other showed an emphysema following pneumothorax and thoracotomy. In both of these cases there was an extensive bronchopneumonia of the

lung on the unoperated as well as on the operated side. The development of the emphysema in both of these cases, though following operation, was precisely similar to the development of the emphysema in our other cases. That there was probably no direct relation between the operation, per se, and the development of the emphysema will be pointed out later.

Fig. 2.—Extensive dissection of subcutaneous tissue and muscle sheaths, typical of emphysema.

### BACTERIOLOGIC FINDINGS

It has been a routine in this hospital to obtain sputum cultures in all cases of pneumonia when satisfactory specimens could be obtained. Also, in case of death, cultures are taken at the time of necropsy. It has not been possible to establish any relationship between the causal organism in a case of pneumonia and the development of emphysema or pneumothorax. In Table 3 are given the bacteriologic findings in the cases reported.

### ONSET AND EXTENSION OF SUBCUTANEOUS AND INTERSTITIAL EMPHYSEMA

Without exception the emphysema was first noted in the soft tissues at the episternal notch or above one or both clavicles, spreading from these points to the neck, face, scalp, chest, arms and trunk.

That this was a true subcutaneous and interstitial emphysema and not a gas bacillus infection was at once established by the absence of inflammation, by the clinical progress and by roentgenograms. In gas bacillus infection it has been clearly demonstrated by roentgenoscopy that the gas is diffusely distributed throughout the entirety of the involved tissues, whereas in emphysema the air is found to dissect its way along blood vessel and muscle sheaths in the line of least resistance. In Figures 1 and 2 are shown reproductions of the roentgenographic findings.

It is interesting to note that, with this extensive dissection, the patients complained of very little pain and little or no tenderness over the emphysematous areas. All patients did, however, complain of choking sensations.

TABLE 1.—LUNG INVOLVEMENT IN CASES IN WHICH EMPHYSEMA OR PNEUMOTHORAX DEVELOPED

| Case No. | Lobes Involved | | | | | Complication |
|---|---|---|---|---|---|---|
| | R. U. | R. M. | R. L. | L. U. | L. L. | |
| 25540 | + | + | + | 0 | + | Emphysema |
| 27201 | + | 0 | 0 | + | + | Emphysema |
| 27365 | + | + | + | + | + | Emphysema |
| 27975 | + | + | + | + | + | Emphysema |
| 28670 | + | + | + | + | + | Emphysema |
| 29129 | + | + | + | + | + | Emphysema |
| 29292 | + | + | + | + | + | Emphysema |
| 29940 | 0 | 0 | + | 0 | + | Emphysema |
| 31158 | + | + | + | + | + | Emphysema |
| 24932 | + | + | + | + | 0 | Pneumothorax |
| 30274 | T. B. | 0 | + | T. B. | + | Pneumothorax and emphysema |

### MECHANISM OF THE PRODUCTION OF EMPHYSEMA AND PNEUMOTHORAX

It is of considerable interest to know just how the emphysema and pneumothorax are produced. It seems probable, as both conditions were found in the same patient at different times, that the same factors that produce one may produce the other.

TABLE 2.—EXTENT OF EMPHYSEMA, WITH PROMINENT SYMPTOMS

| Case No. | Extent of Emphysematous Involvement | | | | | | | | | | Symptoms at Onset | Outcome of Case |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Supraclavicular Space | Infraclavicular Space | Neck | Face | Scalp | Arms | Chest | Trunk | Genitalia | Thighs | | |
| 25540 | + | + | + | + | + | + | + | + | + | + | Severe cough; bloody sputum | Recovery |
| 27365 | + | + | + | + | 0 | + | + | + | 0 | 0 | Choking; sharp pain in chest | Death |
| 27975 | + | + | + | + | 0 | 0 | 0 | 0 | 0 | 0 | No notes | Death |
| 28670 | + | + | 0 | 0 | 0 | 0 | + | 0 | 0 | 0 | Severe cough; bloody sputum | Recovery |
| 29129 | + | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | No notes | Death |
| 29292 | + | + | + | + | + | + | + | + | 0 | 0 | No notes | Death |
| 29940 | + | + | + | 0 | 0 | 0 | + | 0 | 0 | 0 | Severe cough; bloody sputum | Recovery |
| 31158 | + | + | + | 0 | 0 | 0 | + | 0 | 0 | 0 | Sharp pain | Death |

In passing from the lungs to the chest wall the air may follow one of two routes, which may be termed (1) the intrapleural route and (2) the extrapleural route.

1. *The Intrapleural Route.*—For air to pass from the lungs to the chest wall by this route, it must pass through both the visceral and the parietal pleura. To pass through both the visceral and parietal pleura without producing a pneumothorax it must be assumed that adhesions between these membranes exist at some area and that the passage of air occurs at this point. At necropsy this seemed the possible route in but one case (27201). In this case air could be easily forced out of the lung at a point where recent adhesions had

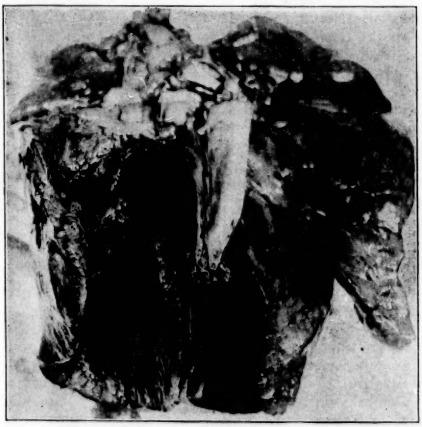

Fig. 3.—Extensive emphysematous excavations (light areas) in lungs. Plate taken under ray filter to eliminate high lights.

formed and where the parietal pleura at the corresponding point was found to be lifted up by air. It was apparently possible, in this case, to demonstrate

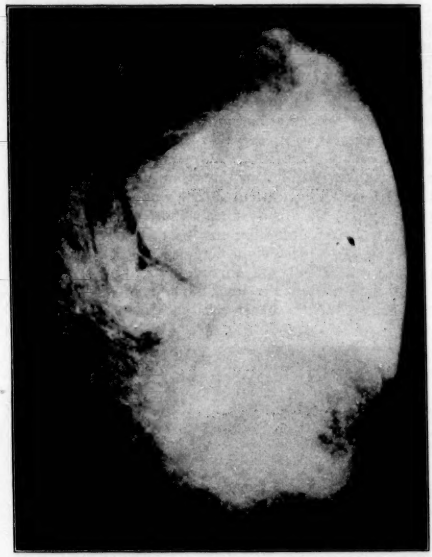

Fig. 4.—Roentgenogram of excised lung, showing well-marked emphysematous excavations especially along the lung periphery. Note especially the collapsed upper lobe and the central consolidation of lower lobe.

that a direct passage of air occurred in this manner. We are of the belief. however, that this is rarely the route taken.

2. *Extrapleural Route.*—For air to gain access to the mediastinum from the lung without passing through

TABLE 3.—BACTERIOLOGIC FINDINGS IN CASES REPORTED

| Case No. | Type of Pneumococcus | Type of Streptococcus | B. Influenzae | Tubercle Bacillus |
|---|---|---|---|---|
| 25540 | IV | 0 | + | 0 |
| 27201 | 0 | Nonhemolytic | 0 | 0 |
| 27365 | IV | Nonhemolytic | + | 0 |
| 27975 | IV | Nonhemolytic | 0 | 0 |
| 28670 | IV | Nonhemolytic | 0 | 0 |
| 29129 | IV | Nonhemolytic | + | 0 |
| 29292 | 0 | Nonhemolytic | 0 | 0 |
| 29640 | IV | Nonhemolytic | 0 | 0 |
| 31158 | IV | Nonhemolytic | 0 | 0 |
| 24082 | IV | 0 | 0 | 0 |
| 30274 | IV | 0 | 0 | + |

the pleura, it would be necessary to assume a rupture of an air sac and a dissection of air from this sac back to the hilum.

Ruptured air sacs in the peripheral borders of the lung have been found frequently at necropsy. In many cases numerous adjacent air sacs have ruptured, forming a large air space, aptly termed "emphysematous excavations" by our roentgenographer, Capt. F. E. Diemer. On removal of the lungs, these excavated areas were found to be distended and covered by tense pleura. Leading off from these excavations were "air streaks" (a term suggested by Capt. M. C. Terry), definitely following the course of blood vessels. Air could be readily forced from the air spaces to the air streaks.

Dissection of the lung also showed that these air streaks could be traced along the course of blood vessels to the hilum. Also, by exposing the hilum of the lung extrapleurally without rupturing the bronchus, and submerging it in water, it was possible, by gently squeezing the lung, to force bubbles of air out at the hilum, the bubbles rising from around the blood vessel walls. This was accomplished through the mediastinum, with the lungs still in place in the chest cavity. Thus it is seen that, with a valvelike entrance from a bronchiole into an air space, a continual flow of air will be produced from the parenchyma of the lung to the soft tissues of the posterior mediastinum. From the posterior mediastinum the air dissects its way to the superior mediastinum, and enters the subcutaneous tissues of the neck and axilla by following the blood vessel sheaths through the deep fascia.

Many cases that did not show a pneumothorax or an emphysema of the chest wall were found at necropsy to have numerous excavations of varying size. They were so extensive in some instances that the lingula or the entire anterior margin of the lobes appeared to be blown up with air. A photograph of one of these lungs is reproduced in Figure 3. Also, by taking roentgenograms of the lung after removal it was possible to show these areas fairly well. A reproduction

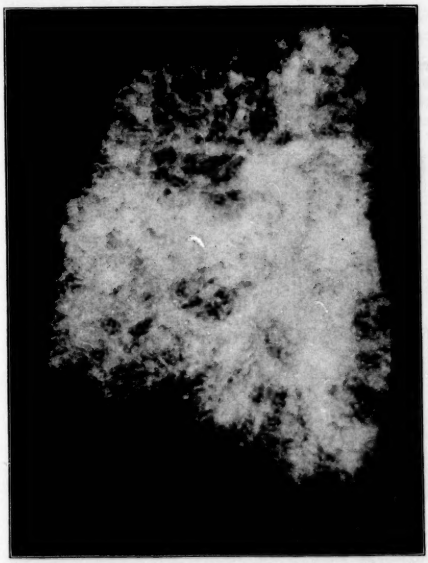

Fig. 5.—Roentgenogram of an excised lung, showing a true pulmonary emphysema without emphysematous excavations. Compare with Figure 4.

of one of these plates is given in Figure 4. This is contrasted in Figure 5 with a similar roentgenogram of an ordinary emphysematous lung.

It was also possible, by roentgenograms, to show excavated areas in certain of the more marked cases during the life of the patient (Fig. 6). The future of these patients, showing emphysematous excavations, who eventually recovered from their pneumonic infection, presents an interesting problem. One patient,

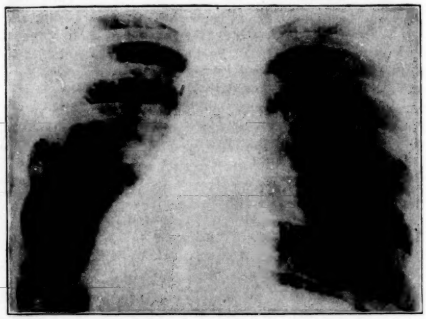

Fig. 6.—Roentgenogram in a case of bronchopneumonia (resolved, both bases), showing an emphysematous streak along the course of a blood vessel in midportion of right lung field.

now quite convalescent, still shows these areas by roentgenoscopy. Whether they will eventually contract down and close by scar tissue formation, or will develop into bronchiectatic cavities, only time will tell.

## PNEUMOTHORAX

As stated above, it seemed likely that the same process that resulted in emphysema in one case might in another result in a pneumothorax. With the formation of the emphysematous excavations on the peripheral border of the lungs, the pleural covering was

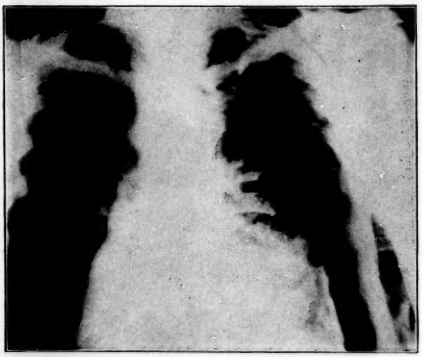

Fig. 7.—Roentgenogram in case of pneumothorax after thoracotomy for relief of pressure. By fluoroscopy prior to thoracotomy the right lung was markedly compressed and the heart pushed to the left. The lung is in the position of collapse and the heart is not displaced.

lifted and put under considerable tension. From these points the dissection of air toward the hilum took place. In paroxysms of coughing the pressure within this space was, of course, considerably increased. Any obstruction to the dissection of this air along the vessel sheaths, or an increase in pressure that exceeded the rate of outlet by dissection, would result in a rupture of the pleural covering of this air space, and a pneumothorax would result. This condition occurred in two of our cases. The roentgenograms of these cases are given in Figures 7 and 8. The pressure fluid present in both of these cases may possibly have been the reason for the delayed escape of air from the air spaces by dissection along the vessel sheaths. In Case 30274, however, tuberculosis must be borne in mind as a possible cause for the pneumothorax.

The symptoms in the two cases of pneumothorax varied widely. Patient 24932, coughed frothy, bloody sputum for three or four days, but showed little or no discomfort, while Patient 30274 was extremely dyspneic. To relieve this dyspnea a thoracotomy was done. Stereoscopic examination in this case prior to thoracotomy showed the right lung to be markedly compressed and the heart forced markedly to the left. After thoracotomy the lung expanded to the position of collapse and the heart returned to its normal posi-

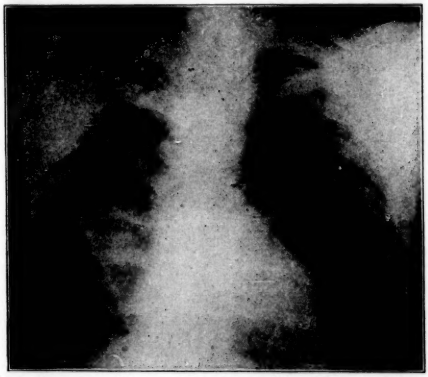

Fig. 8.—Pyopneumothorax. Exposure made with patient in prone, postero-anterior position. The decrease in radiability over the pneumothorax is due to the fluid present. The right upper lobe is not collapsed, owing to the well-marked pleural adhesions. Note the heart displacement and lung compression due to pressure of the pneumothorax.

tion (Fig. 7). Six hours after the thoracotomy a well-marked emphysema was found in the suprasternal notch and above the clavicle on the right side, although careful search revealed no emphysema around the operative wound. It is believed that the marked pressure of the pneumothorax on the hilum prevented the exit of air from the hilum of the left lung, and that the release of this pressure by thoracotomy allowed its escape into the mediastinum with the resultant emphysema.

A similar explanation is offered for the development of the emphysema, postoperatively, in Case 27201 (Fig. 9). It is assumed that the fluid in the left chest caused a compression of the hilum, thus preventing the escape of air until thoracotomy had been done. The emphysema first developed on the side opposite to the operative wound, and no emphysema was noted about the wound. It was on the unoperated side in this case that it was apparently possible to show the direct passage of air through pleural adhesions to the chest wall.

COMMENT

The rarity of the two unusual complications of bronchopneumonia described in the foregoing is

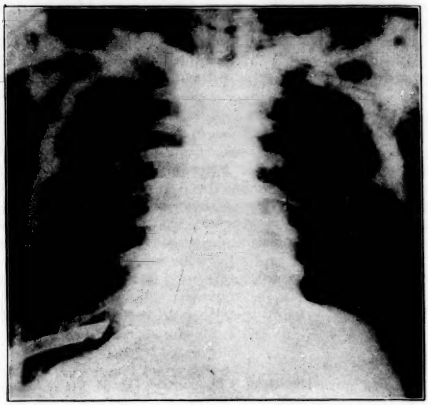

Fig. 9.—Extensive emphysema developing after thoracotomy for empyema. Note equal air dissection in both axillae. Clinically the emphysema was first noted above the right clavicle (operation on left side). No emphysema around operative wound. Pneumonic process not visible, owing to the marked emphysema.

emphasized by their occurrence in only eleven out of 1,701 cases of bronchopneumonia seen at this hospital during the recent epidemic.

## PREVENTION OF RELAPSES IN CASES OF ARRESTED TUBERCULOSIS AMONG SOLDIERS *

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Relapses from tuberculosis in the civilian population, particularly among the working classes, present a most difficult medical and economic problem; but when we are dealing with soldiers and sailors, that is to say, young men between the ages of 20 and 36, representing the flower of the manhood of the nation, it becomes all the more serious. In my address on "Blinded Soldiers as Masseurs," read before the Conference on Rehabilitation of the Wounded in Philadelphia, Sept. 20, 1918, I[1] endeavored to throw out some suggestions as to the possible solution of the study of the various phases involved and a description of some therapeutic methods whereby it is hoped to reduce the number of relapses among tuberculous soldiers and sailors and, if possible, to shorten the time necessary to attain a reasonable security against any recurrence of the old trouble, thus aiding an early and permanent rehabilitation.

* This article is abbreviated for publication in THE JOURNAL by the omission of some literary references. The complete article will appear in the author's reprints.

* Read before the North Atlantic Tuberculosis Conference, Pittsburgh, Dec. 7, 1918; before the Clinical Society of the New York Post-Graduate School, Jan. 17, 1919, and before the Section on Medicine of the New York Academy of Medicine, Feb. 18, 1919.

1. Knopf, S. A.: Med. Rec. 94: 709 (Oct. 26) 1918.

Not only we so-called tuberculosis specialists, consultants or sanatorium physicians in civil practice, but also that splendid corps of men and women who are our collaborators in solving the social problems of tuberculosis, know of the frequency of relapses among those who are sent home from the sanatoriums or health resorts as arrested or apparently arrested cases. However, it is not the fault of the sanatorium physicians or practitioners in climatic health resorts that in many cases which have been discharged as arrested, relapse occurs sooner or later and sometimes after relatively short periods. The vast majority of our tuberculous patients leave our sanatoriums and resorts too soon because of economic necessity and their eagerness to return home in order to make a living for themselves or their dependents. I am sure that if it were in the power of the sanatorium authorities or practitioners in the health resorts to retain them longer, many relapses would be avoided.

The patients that are discharged or discharge themselves as arrested or nearly arrested cases, are not considered even "apparent" cures. The definition of the term "apparent cure" is that all constitutional symptoms and expectoration with bacilli shall have been absent for a period of at least two years under ordinary conditions of life. An arrested case is one in which all constitutional symptoms, expectoration and the bacilli have been absent for a period of six months, and the physical signs are those of a healed lesion. An apparently arrested case is one in which all constitutional symptoms and expectoration with bacilli have been absent for three months, the physical signs being those of a healed lesion.

For a long time I have asked myself, What can and should be done in order to shorten the period between

Fig. 1.—Original position.

Fig. 2 (first exercise).—Raising the shoulders.

the time when a case is arrested and when it can be considered cured? I have already absolved the sanatorium and health resort physicians from blame, but there is no denying the fact that a great number of patients return home, with the label "arrested case," whose muscles are flabby from the prolonged rest-cure on the

reclining chair, whose respiratory systems have become indolent because they could not and should not breathe deeply while their lesions were active. Very often the excellent climatic conditions that prevail in sanatoriums and health resorts have tended to increase the patient's sensitiveness to atmospheric changes, and not to heighten his resistance to the invasion of pneumococci and the minor respiratory infections, all of which tend to reawaken an arrested tuberculous lesion. Add to these the disturbing factors of the toxins (fatigue poisons) produced by overworked flabby muscles, and we need not wonder at the frequent relapses.

In some institutions hydrotherapy is employed, and this is after all our best means to fortify the circulatory, cutaneous and nervous systems against atmospheric changes and the invasion of micro-organisms through our respiratory systems; but in many sanatoriums nothing is thought of the value of the external use of cold water as a tonic to render the system immune, as far as it is possible, to so-called colds. In my humble opinion, hydrotherapy is a most important therapeutic agent in the treatment of tuberculosis, particularly during the period of convalescence after the arrest of the disease.

### VALUE OF MASSAGE

The same things may be said regarding that important part of our armamentarium for the treatment of numerous diseases in modern as well as in ancient medicine, known as massage, so sadly neglected by most of us in the management of tuberculous cases.

In my hospital practice in the city of New York, where I have to deal almost exclusively with advanced cases of tuberculosis, it is obvious that the application of massage is not feasible and but rarely indicated; the same holds good of routine hydrotherapy or respiratory exercises. But in private practice I have found massotherapy, hydrotherapy and respiratory therapy of the greatest value for convalescent patients and those returned from the sanatorium as arrested cases. During my student days in this country and abroad, it was my good fortune to have had opportunity to study massage and what is known as the Swedish movement cure. I have taught these valuable therapeutic adjuvants to many of my pupils and nurses; and in cases in which, for financial reasons, a professional masseur could not be employed, I have often succeeded in teaching a well member of the family how to apply the treatment to the tuberculous invalid. It was surprising to me to see how many men and women there are with a natural aptitude for this work. In some instances they developed into experts so that I could employ them advantageously in other families.

Because of the skill acquired by some of my assistants, nurses, and friends of patients and their willingness to apply massage to that class of invalids, I believe I have had considerable success in guarding arrested cases from relapses and in preparing them for more active physical exercise and work, particularly when hydrotherapy and carefully graded respiratory exercises could be added to the massotherapy. After all, we must admit that in spite of our advance in serology and immunology, we have up to this date no medicinal agent or culture product that will protect the arrested case against a recurrence of the disease. Physiotherapy, that is to say, a judicious combination and application of massage, cold water, and graded breathing exercises, seems, up to this date, our only means to prevent relapses in arrested cases of pulmonary tuberculosis. It should be applied for a period of from four to six weeks after the case has been pronounced arrested. Individualizing in the postsanatorium treatment is as essential as in the sanatorium treatment proper. It is evident that such patients must also be taught that prudence, temperance and a hygienic mode of life must be the rule for their conduct ever after, if they do not wish to undo the good effects of the sanatorium and postsanatorium treatment.

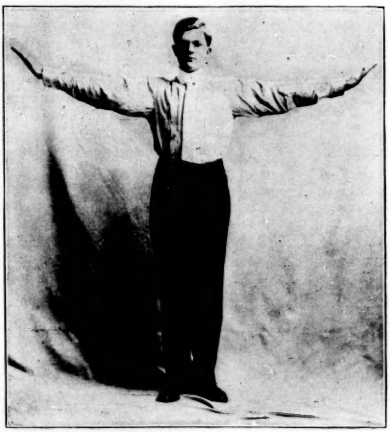

Fig. 3 (second exercise).—Arms horizontal.

Such postsanatorium treatment is not in any way intended to do away with the contemplated program of teaching our tuberculous soldiers a variety of trades and occupations before they leave the military hospitals, each occupation adapted to the individual so that it will be most conducive to the preservation of his health and helpful in reestablishing his earning capacity.

It was more than gratifying to me to learn from my esteemed teacher and friend, Prof. Hermann M. Biggs, whose many years' experience with work-therapy at the Otisville Sanatorium entitles him to express an authoritative opinion, that he agrees with me as to the value of combining the three important adjuvants in phthisiotherapy to prevent relapses. In a letter to me he writes:

> In my opinion, massage, graded respiratory exercises, and hydrotherapy judiciously applied are often of great service in the treatment of arrested cases of pulmonary tuberculosis.

In connection with this endorsement of the value of massage, may I call attention to the fact that all the objections that confront us in applying massage in private practice, in sanatoriums or in civil hospitals, such as financial considerations, unwillingness of the patient to remain, scarcity of masseurs, or phthisiophobia on the part of the latter, need not enter into consideration when we deal with our war heroes, the tuberculous soldiers.

I have the assurance that a number of war blinded soldiers will be trained as masseurs in U. S. Base Hospital No. 7 for the Blind at Roland Park, Baltimore, which is under the able direction of Lieut.-Col. James Bordley. If this hospital should not be able to provide

a sufficient number of masseurs for our tuberculosis work, there will be among our maimed heroes a number who have received injuries to the lower extremities and other types which might be found who could be trained as masseurs. Any unwillingness to remain under medical supervision, when as complete a recovery as can be expected is not attained, is met by the bulletin issued by the Surgeon-General, which reads: "Hereafter no member of the military service disabled in line of duty, even though not expected to return to duty, will be discharged from service until he has attained complete recovery, or as complete recovery as it is to be expected that he will attain when the nature of his disability is considered." Phthisiophobia in the blind need not be feared, nor in any other one-time soldier who has learned to obey and who will believe his officers when they assure him that the contact with a clean, conscientious tuberculous patient, particularly an arrested case that has had sanatorium training, cannot be in the least dangerous to a masseur. The matter of expense to the government which the employment of a number of masseurs would entail in the rehabilitation of the tuberculous soldier and making him a bread winner again, able to support himself and his family and become a useful citizen, is, of course, something that can be considered only as an ultimate advantage. Economy in such matters as these is unworthy of a great country such as ours, a generous republic willing to do all it can do for its soldier citizens who have fought and suffered for their country's and humanity's sake.

This paper would be incomplete were I not to describe massage, the method of applying hydrotherapy, and the graded respiratory exercises indicated in cases of arrested pulmonary tuberculosis.

Fig. 4 (third exercise).—Arms in front of chest.

Fig. 5 (third exercise).—Tapping the chest.

## CHARACTER OF MASSAGE INDICATED IN ARRESTED TUBERCULOSIS

The room in which the patient is to be massaged should be comfortably warm and always well ventilated. To avoid unnecessary exposure it is well to have handy, besides the ordinary bed covering, a shawl or small blanket to protect the parts of the body that are not manipulated at the time. Whether or not to use white petrolatum or talcum powder for the purpose of lubrication will depend largely on the skin conditions of the masseur or patient. As a rule, lubricants are not necessary. The patient should be placed on a moderately high table, or bed with no springs. The height of the bed or table should be suited to the height of the operator. The latter must be able to bend over the patient comfortably and to exert a moderate amount of force without getting too tired himself. A low bed with a spring cannot be used for applying massage scientifically.

The classical books on massage teach a variety of movements, such as effleurage (stroking), friction, pétrissage, vibration and tapotement (hacking). I believe that for the average convalescent or arrested tuberculous case in which general massage is indicated, the following simple movements suffice for all practical purposes: namely, friction, kneading, tapping and stroking. In the friction movement of the extremities, and as much as possible in all the others, the course of the venous circulation should be followed, and in abdominal massage one must have in mind the situation of the small intestine and the colon, so as to aid in overcoming a tendency to constipation. This is done by making a circular motion around the umbilicus from right to left. The colon should be manipulated separately, following its course along the ascending, transverse and descending portions. This massage of the abdominal wall, particularly when there is little adipose tissue, should be more gentle than that of any other portion of the body, and should be supplemented by teaching the patient to retract and relax the diaphragm alternately, holding it for several seconds in the retracted position so as to strengthen all the abdominal muscles.

Of course the massage of no matter what organ should be done with the patient in a recumbent position and in complete muscular relaxation. In giving a general massage it is always best to begin with the lower extremities, starting with the toes from joint to joint, and next to take the plantar and dorsal surface of the foot, from toes to ankle joint, then upward from ankle to knee joint, from knee to hip, and then the abdomen in the manner already described. Next in order are the head and neck, in which the manipulator must, of course, be more gentle than over the extremities. The hands, arms, forearms and thorax are manipulated in the order mentioned. Each finger is frictioned as far as the wrist articulation, then the arm from there to the elbow, and from the elbow to the shoulder. By a semicircular movement, with the palms of the hands and moderately spread fingers, one takes in by the friction movement as much as possible of the posterior and lateral portion of the thorax.

The friction from one joint to another should be applied about four times before beginning with the kneading, which method is explained by the name itself. One manipulates the muscles so as to lift them from the osseous attachment and in the same order as the friction movement. The third movement is the tapping, which may be done with the whole hand, the palmar surface of the four fingers, or if desirable to avoid the clapping sound produced by this movement, one may tap with the ulnar surface of the hand, producing a sort of chopping movement.

The stroking or soothing movement (effleurage) is the last of the four, and consists in gently passing over the entire surface of the body, encircling the extremities with one hand, or both hands, making the strokes

over broad surfaces with the flat hand. A fifth movement consists of pinching the skin for the purpose of exciting the circulation and innervation of inert skin. This form of massaging the cutaneous surface must be done rapidly, at least at the rate of 100 a minute. One should grasp a fold of the skin and not relax it until it is seized by the finger and thumb of the other hand. This fifth movement is indicated in only a relatively small number of cases of arrested tuberculosis; but when it is used it should be followed by the effleurage. This stroking movement should always be the last.

The patient is now turned on his chest with either the right or left cheek resting on a small pillow so that he can breathe easily during the manipulation of the posterior muscles of the lower extremities, the thorax, arms, forearms, etc., in the same order as the anterior

Fig. 6 (fourth exercise).—Arms above head.

Fig. 7 (fourth exercise).—Bending backward.

portion. If the masseur is tall and vigorous and the patient not larger than he, it is possible to apply the friction movement to both arms, both shoulders, and right and left portion of the thorax at the same time. This is done by placing the palms of the hands on the posterior portion of the patient's hands and making a good friction movement over the hands, forearms, arms, shoulders and the posterior portion of the patient's thorax.

The kneading, tapping and stroking movements will remain the same as for the anterior portion, with the only difference that the buttock and the posterior muscles of the trunk will stand a more vigorous massage than the anterior ones. Just as in friction, one should apply kneading, tapping and pinching not more than four times to each portion of the body, so that the time occupied for the entire massage of the body, anteriorly and posteriorly, should not exceed forty-five minutes. It is immaterial at what time the massage is given to the patient, as long as about one and a half or two hours have elapsed after the principal meals.

The so-called movement cure can, of course, be added to this general massage, and it is not difficult to teach or to apply. In applying it one must bear in mind the physiology of the joints and their natural limits of motion. These joint manipulations consist in assistive, passive and resistive movements of the extremities. Although helpful, they are hardly necessary in the average case of the recovered tuberculous invalid. They are often resorted to in certain nervous and rheumatic affections, especially in surgical and orthopedic practice, and should always be done under the guidance of the physician or surgeon in charge of the case.

Assuming that the arrested case of tuberculosis might be looked on as fairly sound physiologically, what, may we ask, is the effect of massage on the circulation, for example. "It rouses dormant capillaries, increases the area and speed of the circulation, furthers absorption, and stimulates the vasomotor nerves, all of which are aids and not hindrances to the heart's action and to nutrition in general."[2] Of course, massage cannot manufacture blood cells or coloring matter, but it can put in circulation those that are dormant in the system. Unless this is done there results the condition picturesquely described by the poet physician, the late S. Weir Mitchell, as "like the want of circulating money during times of panic, when gold is hoarded and not made use of, and interference with commerce and manufacturing results." Thus we find that the anemia, so often still persistent in the apparently arrested case, may be successfully combated by massage. I have already referred to the beneficial effect of massage on the flabby disused muscles.

### METHOD OF APPLYING HYDROTHERAPY

We now come to the next most important measure in physiotherapy for the rehabilitation of tuberculous soldiers, namely, hydrotherapy. In applying any hydrotherapeutic measure to the arrested tuberculous case one must ascertain first whether or not the patient has been using cold water during his convalescent stage as an ablution, shower bath or dip, or in any other form, and at what temperature. Supposing the individual has never used cold water on his body, what are we to do in order to train him and be sure of reaction, and what is the simplest apparatus necessary so that this hydrotherapy can be applied anywhere?

The important precaution to be taken in such cases is not to chill the patient. As a beginning, the cold water application should be made in the form of an ablution, either in the morning when the patient arises from his bed, or in the evening after he has been in bed for about ten minutes and has become thoroughly warm. If necessary the bed can be warmed with the aid of a hot water bag, which may remain at the feet of the patient. It is also well to have the hydrotherapeutic arrangement as near the bed as possible. To this end one should use a circular English bath tub, about 3 feet in diameter and 10 inches high, and pour about 5 inches of water into it at about 105 F. The second part of this simple hydrotherapeutic arrangement consists of a wash basin full of cold water with a large sponge, placed near the larger basin on a table of ordinary height. The temperature of the cold water can vary from 40 to 85 F. From 40 to 45 is usually the temperature of the water coming out of the faucet. It is best to begin with the cold water at a tempera-

2. Graham, Douglas: Massage, Manual Treatment, Remedial Movements, Ed. 4, Philadelphia, J. B. Lippincott Company, 1913.

ture of 85 and then go down gradually 5 degrees every four or five days until a temperature of 40 is reached and borne comfortably. It is always well to have the windows closed and the room warmed while the patient is taking his cold water application. If in spite of all these precautions the patient should fail to react, the cold baths must be discontinued.

The ablution is applied in the following way:

At the beginning the orderly in attendance, and later on the patient himself, takes the sponge soaked in the cold water while the patient stands in the hot water, and squeezes out the sponge first over the back of the neck, then in front, over the thyroid, then over his left shoulder, and then over the right, so that the entire body has been bathed with cold water. The patient then dries himself quickly, not necessarily very thoroughly, with the aid of a large, rough towel, and returns immediately to the bed. Under the warm cover he will feel warm and the little moisture left on his body will soon dry. Through this procedure reaction is assured, and the patient rarely fails to feel comfortable and enjoy the cold water application. If the head should get wet accidentally, he should dry it thoroughly. This is a precaution the patient should always take whenever he has washed his head.

When the system has become accustomed to the water used in this way, the patient can safely resort to the application of a needle or shower bath, or can take a dip into the water as cold as it comes out of the faucet, provided he reacts favorably.

I have made extensive use of hydrotherapy with most gratifying results, and became enthusiastic concerning its beneficial effects in phthisiotherapy in my early career as assistant to Dettweiler in the Falkenstein Sanatorium. In speaking of and recommending hydrotherapy, I always like to insist that the plentiful ingestion of pure water, in preference to all other beverages, plays an important part in the success obtained with the external application of cold water.

Fig. 8 (fifth exercise).—Hands in front, little fingers and edges of palms touching the abdominal muscles.

Fig. 9 (fifth exercise.)—Hands upward from abdominal position.

Fig. 10 (fifth exercise.)—Hands raised from chest and turned.

### GRADED RESPIRATORY EXERCISES

Respiratory exercises should not be resorted to as long as there is activity in the chest. But since we are dealing only with nearly or entirely arrested cases in which all symptoms have disappeared, we need not fear any harmful effects from this part of our physiotherapy. Nevertheless, as will be seen, breathing exercises should be graded and the chest not violently but gradually expanded. The simplest of all exercises, one that can be taken even in bed or sitting on a chair, in a carriage or automobile, also without attracting the least attention while walking outdoors, since it requires no motion of arms, is as follows:

Raise the shoulders (Exercise A, Fig. 2), making a rotary backward movement during the act of inhaling; remain in this position holding the breath for four seconds, and then exhale while moving the shoulders forward and downward, assuming again the normal position (Fig. 1). When Exercise A is thoroughly mastered, begin with the following: In front of the open window or outdoors assume the position of the military "attention," heels together, body erect, and hands on the sides (Exercise B, Fig. 1). With the mouth closed take a deep inspiration (that is to say, breathe in all the air possible), and while doing so raise the arms to a horizontal position (Fig. 3), remain thus holding the air inhaled for from four to five seconds, and while exhaling bring the arms down to the original position (Fig. 1). The act of exhaling, or expiration, should be a little more rapid than the act of inspiration.

The act of inhalation occupies about four seconds, the act of exhalation about three seconds, and as has already been said, the act of retention of the air about five seconds. One counts mentally during these three acts so as to be systematic about holding the air. The hands may be moved upward and downward twice counting four, and on the fifth second one begins to exhale while lowering the arms.

When the second exercise (B) is thoroughly mastered, the third one (C) may be begun. Place the arms, one above the other, in front of the chest giving the hands the position as though wanting to tear the chest open (Fig. 4). Hands, arms and shoulders then make a backward movement (the fingers remaining bent) while a deep inhalation is taken. Count four by tapping the chest four times with both hands (Fig. 5) and at the fifth second start to exhale, bringing the hands and forearms into the position from which they started (Fig. 4). This exercise has the advantage that it can be taken in the sitting position or even when lying on the back.

The fourth exercise (D) consists in raising the arms from the sides (Fig. 1) to the horizontal (Fig. 3) and then above the head (Fig. 6), taking a deep inhalation during this act; then bending backward (Fig. 7) as far as possible and remaining in that position four seconds while retaining the air (counting the seconds by moving the hands alternately forward and backward twice) and on the fifth second exhaling gradually while resuming the original positions (Figs. 3 and 1). During this exercise when the arms are raised until the hands join, do not bring the arms close to the head, but form a sort of circle above the head by bending the elbows outward far enough so that the meeting of the index fingers and thumbs forms a triangle (Fig. 6).

The fifth exercise (E) is for the purpose of bringing the abdominal muscles also into play, or in other words, for

combining abdominal and chest breathing. To this end assume an erect position, as in the beginning of all the exercises, let the hands meet in front with the little fingers and the edge of the palms touching the abdominal muscles (Fig. 8). While taking a deep inspiration raise the diaphragm, concentrating all attention on this act, and while doing so move the joined hands upward, sliding them along the thorax (Fig. 9) up to the chin. Next turn the hands (Fig. 10) and continue to raise them until they are above the head (Fig. 6); bend backward (Fig. 7) during the four seconds while retaining the air and then exhale, lowering the arms gradually to the horizontal (Fig. 3) and then to the original position of "attention" (Fig. 1).

Fig. 11 (sixth exercise.)—Arms as in swimming.

The sixth breathing or respiratory exercise (F), which may also be called a dry swim, requires more strength and endurance. It should not be undertaken until the others have been practiced regularly several times a day for a few weeks, and until an evident improvement in breathing and general well-being has been observed. Take the usual position of military "attention" and then stretch the arms out as if in the act of swimming (Fig. 11), the backs of the hands touching each other. During the inspiration move the arms outward (Fig. 12) until they finally meet behind the back (Fig. 13). Remain in this position for the usual four seconds, counting by moving the hands while retaining the air, and on the fifth exhale, bringing the arms forward again (Fig. 14), ready to start for another swim (Fig. 11); or if this is the end of the dry swim, the arms return to the original position of "attention" (Fig. 1).

This somewhat difficult exercise can be facilitated and made more effective by rising on the toes during the act of inhalation (Fig. 12) and descending during the act of exhalation.

It will be seen that with the aid of these six respiratory exercises every muscle of the body is put into play. The face alone is at rest and can serve as an indicator that the exercises are properly done, for it should be borne in mind that they must be taken without any undue tension of the muscular system, and tremor-like movements must be avoided.

The following general rule concerning breathing exercises should always be remembered: Commence with the easier exercises (A) and do not go on with the more difficult ones until the former are completely mastered. Take from four to six respiratory exercises at a time, one of each, or when outdoors simply the first exercise, from four to six times every half hour or hour, or at least four to six times a day and on rising in the morning and on retiring at night. Continue this practice until deep breathing has become a natural habit. These exercises should always be taken in an atmosphere as fresh and as free from dust as possible. Never take these breathing exercises when tired, and never continue so long as to become overtired. I repeat once more the important injunction that the muscles of arm and forearm, or any of the other muscles coming into play during the respiratory exercises, should never be on a tension but rather relaxed, so as to avoid the expenditure of unnecessary muscular energy.

Besides the exercises described above there is one more that after having learned all the other movements the recovered tuberculous soldier or sailor can add as a means to develop his chest by taking in the greatest possible amount of pure, fresh air. To this end he should proceed as follows:

Take the usual position of "attention" (Fig. 1), then inhale deeply, rolling the shoulders upward and backward, holding the air for four seconds (Fig. 2), and on the fifth second exhale all the air possible. Assume again the original position (Fig. 1); but before inhaling again, make a second expiratory effort while turning the arms outward (movement of supination) and pressing the inner side of the upper arm against the chest (Fig. 15), and thus, so to speak, squeezing out all the air there is left in the lungs. An emptiness in the lungs is created in this way and the patient involuntarily takes a very deep inhalation (Fig. 16), after that assuming the ordinary quiet position of "attention" (Fig. 1).

With the aid of all these exercises we bring about an increase in hematosis. From our physiologic studies we recall that during ordinary inhalation and exhalation the amount of tidal air inhaled is only 500 c.c. The volume that can be inhaled by the first exercise is 1,500 c.c., known as complemental air, and the volume that can be exhaled by this exercise—supplemental air—is about 1,300 c.c. When now the second expiratory effort is added, aided by the supination of the arms and pressure against the chest, 500 c.c. more of reserve or residual air can be expelled. It is evident that this last exercise tends to enhance the value of respiratory therapy.

Fig. 12 (sixth exercise).—Arms moved outward.

### CHOICE OF OCCUPATION

When all three of the measures just described—massotherapy, hydrotherapy and respiratory therapy—have been applied for a number of weeks and the patient is considered as safe against any relapse as the

physician's skill and his own personal training and care can make him, there remains the necessity of selecting an occupation and environments for him that will tend to increase his chance of remaining well. This is a problem in itself, and all I can say here is that in a general way the more the individuals who have passed through postsanatorium treatment can be occupied outdoors, the less danger will there be of any renewal of the disease. At the same time we must bear in mind that there will be many who are neither temperamentally disposed nor physically fit to do agricultural or horticultural work, to raise chickens, drive trucks, become chauffeurs or outdoor salesmen, or be ticket choppers on elevated railroads. For those who have had the necessary training and are willing to occupy such or similar positions, which will assure outdoor life and at the same time enable them to make a comfortable living, nothing better could be selected. But there will be many men who, prior to entering the Army, had been successful in pursuing trades or professions which demanded indoor life, for which they had been prepared by years of training and study and in which they made a very comfortable living. Such would wish, if at all possible, to return to their former field of labor, and I am inclined to believe this can be done safely in many instances, provided the indoor office or workshop is sanitarily constructed and well ventilated, and that the individual lives the most hygienic life possible at home. It is especially important for him to sleep in a well ventilated room. The windows should be wide open, and whenever it is possible, he should sleep outdoors on the porch, in a tent placed on the roof, in the garden or yard. For those living in city apartments or tenement houses, I would suggest the installation of the indoor window-tent.

A draftsman, bookkeeper, clerk, tailor or shoemaker will rarely make a good farmer; but if the precautions just mentioned are taken, these men will do better and be happier when they can return to their former occupations. Of course there will be exceptions, and if the soldier's occupation in civil life was one in which he had been exposed to the inhalation of a great deal of dust or irritating gases, or to the extremes of cold and heat, night work or unusual physical strain, it will be wiser to choose another way for him to earn a living. Lastly, all soldiers and sailors discharged as arrested cases, whether or not they have had postsanatorium treatment, should be impressed with the necessity of having the chest examined at least every three months for the first year or two, and later on semiannually, so as to guard against any insidious recurrence of the trouble. Any intercurrent indisposition or actual disease of whatever kind should be considered important enough to have medical advice sought immediately. The recovered tuberculous soldier or sailor should be particularly careful in times of influenza and pneumonia epidemics, such as we are undergoing at present. He should avoid overcrowded assemblies, keep his bowels in good condition, and above all guard against overfatigue. Let him abide by the simple rule never to continue to work physically or mentally when already tired from manual or brain labor and never to work to the extent of getting overtired (acutely fatigued). It is my conviction that the fatigue poisons are as much responsible for the prevalence of infectious respiratory diseases as careless sneezing and coughing. Whether the periodic examination of the discharged one-time tuberculous soldier shall be done by the surgeon of the nearest military post, by a civilian practitioner, by a physician especially qualified and appointed by the government, or by the medical staff attached to the various tuber-

Fig. 13 (sixth exercise).—Arms meeting behind the back.

Fig. 14 (sixth exercise).—Arms again forward.

Fig. 15 (additional exercise).—Expiratory effort, arms outward.

Fig. 16 (additional exercise).—Inhalation.

culosis institutions or under the direction of the National Tuberculosis Association, is a matter which should be worked out carefully by the respective authorities.

I am convinced that by carrying out systematically the methods I have described, to prevent relapses in arrested cases of tuberculosis, and by the subsequent periodic reexamination of the one time tuberculous soldier or sailor, not only will many valuable lives be saved, so greatly needed in this period of reconstruction, but individuals and families will be spared a great deal of suffering, and thousands of dollars of pension money will be saved to our government.

16 West Ninety-Fifth Street.

## MASTOIDECTOMIES UNDER LOCAL ANESTHESIA

### A BRIEF REPORT ON NINE MASTOIDECTOMIES (ONE DOUBLE), UNDER LOCAL ANESTHESIA AT THE BASE HOSPITAL, CAMP UPTON, N. Y.

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During the measles and pneumonia epidemic of the winter of 1917-1918, it was found necessary to operate in several cases in which acute mastoiditis complicated the pneumonia. In the absence of an expert in nitrous oxid and oxygen anesthesia, and part of the time of one in nitrous oxid anesthesia, it was deemed expedient to perform these operations under a local anesthetic. There was also one case from the recent influenza epidemic in which the operation was started under nitrous oxid-ether anesthesia; unpleasant symptoms arose when the anesthetics were switched, and it was decided to give the patient local anesthesia.

The method of administration was as follows: The patient was first given one-fourth grain of morphin subcutaneously, and in half an hour a 0.5 per cent. solution of cocain or procain, when the latter became available, was injected into the skin along the line of incision. The injection was then carried into the deeper layers and finally under the periosteum over the entire area of the mastoid. The insertion of the sternomastoid muscle and the posterior canal wall were injected at the last. About 15 c.c. of a 0.5 per cent. solution were used, in each case, although as high as 30 c.c. of a procain solution were used in one case—a double mastoiditis—and as low as 6 c.c. of a 0.5 per cent. solution of cocain were used in another case.

After waiting for from five to ten minutes, the operation was started and carried on in the usual manner. The patient usually complained somewhat of the pounding necessary to remove the cortex, but all admitted afterward that there was little actual pain.

In only one case did I find it necessary to resort to general anesthesia. In this case, that of a Russian who was very nervous and apprehensive from the start, we finished under chloroform.

One case in which I did a double mastoidectomy at the same time deserves special mention, as the patient was so ill at the time that it was not deemed advisable to give any type of general anesthetic.

The most remarkable thing about these cases, in my opinion, was the almost total absence of any shock following the operation. This indicates more conclusively than the statements made by the patients that there was very little pain or none at all. This was also observed by Major Harlow Brooks, then chief of the medical service.

In this series of cases the incidence of dry middle ears was 100 per cent., and there was no mortality. A patient with double mastoiditis, the most seriously ill of all, is now recovered and ready for discharge. He has been in the general surgical service for a recurrent empyema and multiple abscesses. Although ten days after the operation for mastoiditis a blood culture revealed *Streptococcus hemolyticus*, it was decided that the blood stream infection probably came from the chest condition, rather than from an infected sinus thrombosis, as neither sinus was exposed at the time of operation, and the overlying bone was found healthy.

#### REPORT OF CASES

Case 1.—D. J., a colored man, aged 21, farmer, admitted to my service, Jan. 3, 1918, for epistaxis, had had repeated nosebleeds for several years, and had suffered from swelling of the feet, legs and abdomen for two years. Urinalysis revealed albumin, + + +, and granular, waxy and epithelial casts. The specific gravity of the urine was 1.007. An additional diagnosis of chronic parenchymatous nephritis, with cardiac hypertrophy, was made.

January 6, the patient developed acute, bilateral, purulent otitis media.

January 7, 50 c.c. of horse serum were given to control a nasal hemorrhage. The nose had been packed repeatedly. The right ear cleared up after free paracentesis. The left ear continued to discharge.

February 14, there was a slight swelling over the left tip.

February 15, a simple mastoidectomy with the usual incision was performed. The sinus and dura were exposed. The entire tip was removed. An iodoform wick was inserted into the neck in addition to the regular mastoid packing. No pus was found in the neck. One-fourth grain of morphin, and 10 c.c. of a 0.25 per cent. cocain solution were used.

April 29, the patient was discharged from service. The ear was dry and the wound healed.

Case 2.—S. V., white man, aged 22, admitted to the hospital, Jan. 20, 1918, for measles and bronchitis, later developed pneumonia.

June 26, he complained of ear ache.

June 27, the left drum ruptured. I saw the patient after the rupture. He had considerable bronchial irritation, and it was thought unwise to give ether. The urine showed a trace of albumin. The specific gravity was 1.025. Culture revealed *Staphylococcus aureus.*

July 1, A simple mastoidectomy was performed. Fifteen c.c. of a 0.5 per cent. solution were used.

August 17, the patient was discharged, with the wound healed and the ear dry.

Case 3.—R. J., white man, aged 23, farmer, admitted to the hospital, April 27, 1918, for measles, developed bilateral bronchopneumonia, April 30; mumps on the left side, May 4; pharyngitis and acute follicular tonsillitis, May 5. May 6 he showed signs of acute arthritis in all joints. May 7 there were signs of pericarditis with endocarditis. May 11 he developed acute purulent otitis media on the left side, for which free paracentesis was employed, and May 12 on the right, with the same treatment. There were positive signs of mastoiditis on the left side, May 24, and on the right side, May 26. Pus from the ear showed *Staphylococcus aureus*, May 25.

The urine was negative. Blood culture, June 10, revealed *Streptococcus hemolyticus.*

May 31, a simple double mastoidectomy was performed. One-half grain of morphin and 30 c.c. of 0.5 per cent. procain were used.

June 29, an abscess developed on the left scapular region of the back; also somewhat later on the legs. There was

empyema on the left side. A specimen of pus from these showed streptococci.

August 15, the wound was healed and the ears were dry.

November 12, the patient still had abscesses on the body.

November 20, the patient was ready for discharge from the hospital, cured.

CASE 4.—B. A., white man, aged 25, admitted to the hospital with measles, developed pneumonia and later an acute infection of the left ear. Paracentesis was done. The pus from the ear showed *Streptococcus hemolyticus.*

April 26, a simple mastoidectomy was performed. One-fourth grain of morphin and 6 c.c. of 0.5 per cent. cocain solution were used. The wound was left open, the better to drain what was diagnosed as the beginning of a temporal abscess. In this case also an improvised drainage tube was used in connection with neutral solution of chlorinated soda. The result of this was negative so far as any difference could be made out. Later the edges were freshened and the wound was sutured. July 18, mumps developed.

August 14, the patient was discharged from the hospital. The wound was healed and the ear dry.

CASE 5.—S. W., white man, aged 25, farmer, admitted to the hospital with measles, several days later developed bronchopneumonia. He had acute otitis media on the right side. Paracentesis was done with free drainage.

May 6, a simple mastoidectomy was performed. One-fourth grain of morphin and 15 c.c. of 0.5 per cent. cocain solution were used.

June 26, there was a second attack of bronchopneumonia, from which the patient died two weeks later. At the time of his transfer to the medical service, his ear was dry but the wound was not entirely healed.

CASE 6.—T. S., white man, aged 25, admitted to the hospital with measles, later developed bronchopneumonia. Paracentesis was done for acute, purulent, right otitis media.

June 5, a simple right mastoidectomy was performed. One-fourth grain of morphin and 30 c.c. of 0.5 per cent. procain solution were used.

July 16, the patient was discharged from the hospital. The wound was healed and the ears were dry.

CASE 7.—D. J., white man, aged 27, admitted with measles, later developed bronchopneumonia. Paracentesis was done.

June 4, a simple right mastoidectomy was performed. Procain solution, 0.5 per cent., and chloroform, 90 gm., were used. The patient was too nervous for local anesthesia.

July 10, he was discharged from the hospital with the wound healed and the ear dry.

CASE 8.—H. W., white man, aged 22, farmer, admitted to the hospital, Oct. 18, 1918, with influenza and bilateral bronchopneumonia, had pain in the left ear, November 1, and some mastoid tip tenderness, with free discharge, November 4.

November 19, a diagnosis of acute left mastoiditis, with Bezold's abscess, was made. The patient was immediately transferred to the ear service.

November 20, a simple left mastoidectomy was performed. The tip was necrosed. The neck was drained. Pus was found in the soft tissues, just outside the tip. One-half grain of morphin and 8 c.c. of 0.5 per cent. procain solution were used. Pus from the tissues showed *Staphylococcus aureus.* The patient felt little if any pain during the operation and kept up a conversation with the nurse the whole time. There was absolutely no shock following the operation. The patient was up and around the ward the next day.

November 27, the middle ear was dry. The wound healed by first intention.

## CAMPTOCORMIA (BENT BACK)

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The term "camptocormia" was originally used by Souques,[1] who presented a case before the Société de neurologie in Paris in February, 1915, as applied to the forward flexion of the body with or without lateral inclination. Hurst[2] has reported similar cases under the name "bent back." The particulars of sixteen cases of camptocormia have been presented by Rosanoff-Saloff,[3] from whose article some of the accompanying illustrations are taken. It is stated that the most careful examination of these patients has revealed no organic lesions. The author divides the patients into two classes, namely, those who had been wounded, and second, those showing no evidence of wounds. The first class included only two of the sixteen cases,

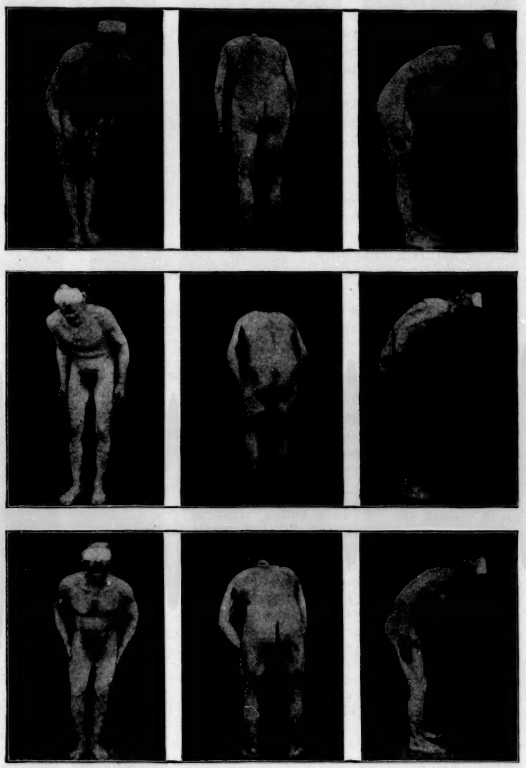


Fig. 1.—Several camptocormic soldiers examined and followed by Rosanoff-Saloff for several months at the hospice Paul Brousse (de Villejuif) in the service of Souques. All three present pure camptocormia.

1. Souques, A.: Rev. neurol. **23**: 757, 1916; **24**: 142, 1917.
2. Hurst, A. F.: Brit. M. J. **2**: 621 (Dec. 7) 1918.
3. Rosanoff-Saloff: Considérations générales sur la camptocormie, Nouv. iconog. de la Salpêtrière **28**: 28, 1916-1917.

and the injury was distant from the part of the body bent. In the second class the men had been the victims of shell explosion and had been thrown to the ground by the force of the explosion and suffered some dorsolumbar traumatism. In all the cases lumbar pain was the important symptom. This gradually subsided after many days in bed, and on getting up the patients found they could not stand erect even though all pain had disappeared. Hurst states that the posture

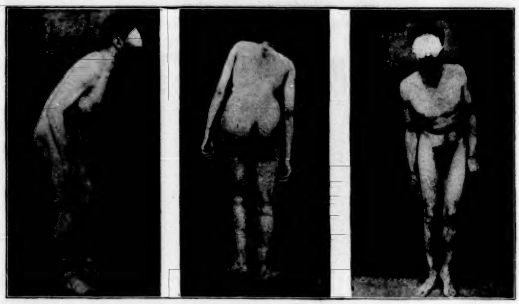


Fig. 2.—Camptocormia combined with lateral inclination.

adopted to relieve the pain is regarded by the patient to be directly due to the injury as well as the pain.

### REPORT OF CASE

The subjoined case conforms to the class which these authors have described:

J. S., aged 30, an enlisted soldier, Oct. 29, 1917, received an injury to the lower part of the abdomen on the left side and a bruise to the left arm, by a box weighing 115 pounds falling across his abdomen from the lowest step of a stairway. He was not seriously disabled at the time, but about twelve days later his body became somewhat flexed toward the left when sitting, standing or walking. The condition was looked on by the surgeons in charge as purely functional in character, and on Nov. 22, 1917, it was decided to operate on a varicocele, hoping to improve the former ailment. Immediately following this operation the patient's symptoms became aggravated in that he complained of increased pain and a severe "drawing" sensation of the left testicle on his attempting to asume an erect position of the body, and he was of the opinion that both testicles had become atrophied as the result of the operation. The trunk at the same time became considerably more bent toward the left. He was given a furlough, and his wife gave out the report that he had become impotent. This report caused expressions of sympathy among female organizations, which developed an active interest in the cause and gave the case rather widespread publicity.

In the meantime the patient's body became still more flexed toward the left. In June, 1918, Dr. Peter Bassoe and I were requested to examine the patient and render a report to the government, as we were serving in the capacity of contract surgeons at the time. Our examination revealed no organic changes in the central nervous system. Roentgenographic reports were negative. The patient showed diminished tactile and pain sense on the left side of the body. There was no hemianopsia, and the deep reflexes were but slightly increased. The Babinski sign was absent. At the time of our examination, the patient's body was greatly flexed toward the left while he was sitting or standing, and when he walked his left hand would rest on his left leg near the knee. He complained of severe "drawing" sensations in the testicles, extending toward the lumbar region on the left side. The diagnosis of a purely functional disturbance was made, and it was recommended that he be sent as far away from home as possible and be placed in a neuropsychiatric hospital.

### PATHOGENESIS

In seeking the pathogenesis, Rosanoff-Saloff found that all of these sixteen patients were more or less neuropathic. Four of the patients gave a decided neuropathic family history, such as alcohol and epilepsy.

Sicard[4] examined the spinal fluid in fifteen cases within from ten to fifteen hours after the shock or injury and found the presence of hyperalbuminosis, with no other findings pointing to organic changes in the central nervous system. Souques likewise found hyperalbuminosis in three cases.

### DIAGNOSIS AND TREATMENT

This condition resembles no disease except spondylitis deformans. While in the majority of cases uncomplicated kyphosis is present, Hurst has seen lordosis, lateral curvature and combined lateral curvature and kyphosis. He reports several cases in this connection.

Hurst states that unfortunately the medical officer too often makes the mistake of prescribing a treatment which causes the patient to believe that he is the victim of a very serious ailment. Hurst believes it is a purely functional disease and that psychotherapy is the treatment, electricity being used as only one of the means of suggestion. The application of a plaster jacket after straightening the spine under anesthesia will do no good and may do harm by more firmly fixing the idea in the patient's mind. He believes that hypnotism may be useful but that simpler methods,

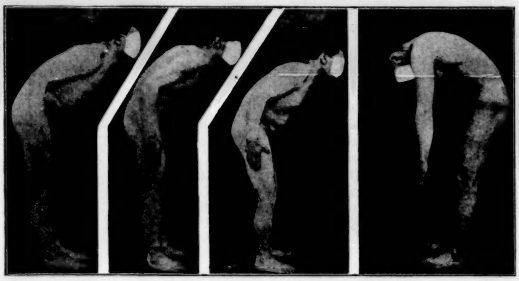


Fig. 3.—Normal man bending forward.

such as persuasion and reeducation, are better. The patient should be told that it is a bad habit, and he recommends strict discipline in effecting a cure. An illustration of his method of treatment is reproduced in Figure 5, showing how the patient is straightened out on the board in a horizontal position with his feet firmly fixed against the footboard placed at right angles. He is then gradually raised to the erect position, and in that way the author impresses the patient that his

4. Sicard, J. A.: Bull. et mém. Soc. méd. d. hôp. de Paris **30**: 582, 1915.

body can be kept in an erect position and thus effects a cure.

Souques says that pure camptocormia is easily cured by persuasive electrotherapy. In a normal person, according to Rosanoff-Saloff, a long continued muscular immobility tends to produce the fixed attitude, but the patient's will power readily corrects the trouble; whereas, in a neuropath, the position is accepted by a sort of inertia or autosuggestion, and he adapts himself to it. Consequently, the prognosis in such cases is not good.

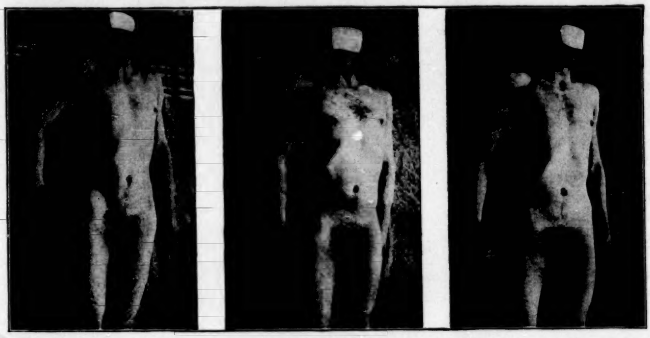
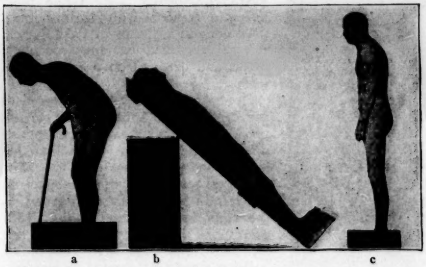


Fig. 4.—Among some subjects, the effort of straightening produces a classic trembling of the lower limbs which persists for from fifteen to twenty minutes. On the other hand, on a horizontal surface, straightening is complete and spontaneous in the case of most persons who are ill.

Rosanoff-Saloff further states that if the flexed position is corrected, the patient is prone to fall back into the former condition on the slightest provocation, and that hospitalization confirms him in his mental attitude.



a b c

Fig. 5.—Bent back of five months' duration: *a*, before treatment; *b*, under treatment with "back-board"; *c*, after treatment.

These patients should be treated in a neuropsychiatric hospital and under the strictest discipline.

104 South Michigan Avenue.

**Changing His Brand for a New Start.**—Sir James Crichton-Browne relates the story of the provost of a Scottish town who had presided at a teetotal meeting. The provost wound up the meeting by a few remarks in which he said: "I confess I am not a total abstainer; I take a little whisky and water daily, but I may say that after the speeches I have heard this evening, had I to begin life again I would start on milk."

## ANTALGIC SPINAL DISTORTION

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By antalgic spinal distortion I mean that peculiar condition characterized by an unnatural direction of the back, without any marked organic change in its structures, and adopted originally in order to relieve pain.

Some physicians serving in the war have observed among sick and wounded soldiers and sailors certain patients sitting, standing or walking in a stooping attitude, with round shoulders and back, or in an attitude wherein the back has assumed abnormal direction varying from moderate asymmetry to extreme distortion. Attention has for some time been directed to this condition, and an extensive literature on the subject has grown in France; but its true nature has rarely been recognized.

French writers have given this condition many denominations, such as plicature vertébrale, camptocornie (Souques and Rosanoff-Saloff[1]), spondylose antalgique (Sicard[2]), and campto-rachis (Laignel-Lavastine and Courbon[3]).

So far as my reading has extended, I find no mention of it in the medical literature of this country; and in that of England I find only one paper, under the title of "The Bent Back of Soldiers."[4]

Although this condition has of late been observed largely in men in the service, it would be incorrect to limit it to them, for many surgeons have undoubtedly seen patients in civil life who, after an abdominal operation, say an appendectomy, or after an attack of lumbago or an accident, developed a stooping attitude, bending forward with rounded shoulders and back, and walking slowly and trembling.

### ETIOLOGY

The affection has been encountered especially in people who have a predisposition to the varied and ill-defined morbid conditions which may be provoked in most of the systems, and which are included under the name of hysteria and neurasthenia. At present it is difficult to say in what proportion it affects men and women in civil life. Military or naval service plays a great part as a provoking agent, where men are subjected to prolonged watching, physical overwork and emotions, and are disposed to malinger.

The main factor in developing the condition is pain, which may be due to a pathologic process or may be psychic. Its location need not be limited to the back, or to any particular organ or structure, for it may be

1. Souques and Rosanoff-Saloff: Rev. neurol. **22**: 937, 1915.
2. Sicard: Bull. et mém. Soc. méd. d. Hôp. de Paris **39**: 582, 1915.
3. Laignel-Lavastine and Courbon: Rev. gén. de path. de guerre, p. 1, 1918.
4. Hurst, A. F.: Brit. M. J. **2**: 621 (Dec. 7) 1918.

in the abdomen, thorax or other regions. Most commonly, however, it follows backache, and the causes of backache are too many and too vaguely enumerable to be mentioned here. Among the various causes of pain leading to such an affection I may mention an accident, a blow, a wound, or a fall on or about the back or abdomen, a diseased organ, as an appendicitis, the after-effect of an operation or a lumbar puncture, an attack of rheumatism or lumbago, and exposure to cold and damp.

Fig. 1.—Patient before treatment.

### PATHOLOGIC ANATOMY

The unnatural direction of the back is due to no pathologic changes in its structures, but is adopted in order to relieve the pain. This pain in some cases may become continuous, and is due chiefly to the constant stretching of the ligaments and small muscles of the spine. The diversity of the conditions that have caused the pain may lead us to confusion. A bruising, following an injury, may cause fibrositis, myositis or both—a pathologic process. Rheumatism or lumbago also produces pathologic changes in the fibrous and muscular tissues. In patients with a history of such conditions and a faulty position of the spine, bruising soon disappears. The rheumatism or lumbago eventually improves. The pain is either completely relieved or is less severe than it was at the onset, and yet the posture adopted remains. The more or less permanent organic element, if any, left from the effect of the bruise or the rheumatism is not in itself all sufficient to justify the patient in assuming such a posture. A psychic element is entirely or chiefly responsible for it. Roentgenoscopy in these cases reveals no organic lesion of the spine.

### DIAGNOSIS

The distortion arises from the pain and not the pain from the distortion. The appearance of the patient, and the absence of true organic lesion, after roentgen investigation, are distinctive signs and symptoms to make the diagnosis an easy matter. Cases of various kinds of deformities, as kyphosis, lordosis and scoliosis, mild or severe in degree, uncomplicated or combined, have been seen which owe their origin to this affection. In some cases antalgic kyphosis may be difficult to differentiate from spondylitis deformans. A careful observation of the progress of the disease can settle the diagnosis. Further, in spondylitis deformans, a change of position does not affect the spinal curve and its rigidity. In antalgic kyphosis, lying with the back on the table invariably permits of reposition of the spinal curve partially or totally.

### TREATMENT

We have seen that although the etiology of this condition is variable, its pathology is always psychic, and has generally, if not entirely, no organic element. We are therefore justified in considering the phenomena of this condition the result of autosuggestion, and they can be reproduced by the will. In ordering a treatment, we must keep in mind that these phenomena will disappear in the same way that they are reproduced, under the exclusive influence of persuasion. Psychotherapy should replace the various and elaborate methods of treatment, and remove the impression from the patient's mind that he is suffering from some serious disease. The patient believes that his abnormal posture is the cause of his pain, instead of the opposite, and the medical man, by prescribing treatment with drugs, massage, counterirritants, electricity, the plaster-of-Paris jacket, etc., reinforces the autosuggestion of the patient by heterosuggestion. From the failure of such treatment, the patient is led to believe that his condition is incurable.

The subjoined case, under my care recently, shows that some cases of abnormal curvature of the spine, which have proved very resistant to various forms of treatment, and consequently considered incurable, are really examples of antalgic spinal distortion.

### REPORT OF CASE

*Lateral curvature of the spine, of three months' duration, cured by psychotherapy in one week.*

Seaman A. R. H. of New Hampshire, aged 27, with nearly two years' service in the U. S. Navy, was admitted to the Elizabeth City Hospital suffering from lateral curvature of the spine.

At the time of his enlistment, early in 1917, his height was 71 inches, weight 150 pounds, circumference of chest 34 inches, expansion 4 inches, vision and hearing normal. About Oct. 1, 1918, while he was on night duty on board a submarine chaser at Baltimore Nets, his back began to pain him. The pain started at the end of the spine and extended upward to the neck. At the end of the watch, his body was drawn over to one side, and he was unable to hold himself straight. The pain and the faulty position continued. He remained on board ship until October 25, when he was sent to the U. S. Naval Hospital, Norfolk, Va. While there he was treated with hydrotherapy, massage and a plaster-of-Paris jacket. Several roentgen examinations were made, and detected no organic spinal lesion.

Fig. 2.—Patient after treatment.

December 28, he was transferred to my care, at the Elizabeth City Hospital, for further treatment. On admission, the patient stated that his back ached continuously. There was a lateral curvature of the spine to the left in the lumbar region and to the right in the dorsal region, with corresponding prominence of the left hip and right shoulder. The faulty position could be corrected by manipulation while standing.

An explanation of the condition was given the patient. He was told that there was nothing serious the matter with his spine, and that the backache would soon disappear if he would relax his muscles and stand straight. First he was made to stand erect with his back to the wall, and then to walk forward in the same position. Similar simple methods of persuasion and reeducation continued for one week, and the patient recovered completely.

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**Health and National Efficiency.**—Care for the health of the people is the secret of national efficiency. It is the secret of national recuperation.—Lloyd George, Manchester Speech.

# THE VALUE OF THE WASSERMANN REACTION IN PREGNANCY

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The report made by Falls and Moore[1] of a positive Wassermann test in 11.3 per cent. of 160 cases of pregnancy raised a doubt in the mind of one of us (E. L. C.) as to the correctness of these figures, at least in private practice. If they are correct, a very large number of syphilitics in private obstetric practice are escaping detection altogether. In support of this doubt, the figures obtained in other series showed a considerable variation. Commiskey[2] reported 8 per cent. of positive results and Menten[3] 13.45 per cent. positive, while Adair[4] obtained only 6.5 per cent. positive.

We feel justified in suspecting that the high proportion of syphilitics in these series and the variation in results were due to the presence in them of charity patients, and especially negroes. We therefore decided to test the question by a parallel series of cases, one among private patients and another among those entering the Chicago Lying-In Hospital for free care.

The cases in the first series were consecutive, every patient in the practice of one of us (E. L. C.) being given a Wassermann test at her first visit. Some appeared early in pregnancy, while others were not seen until the time of delivery. A few were consultation cases.

In 107 cases, four gave distinctly positive reactions. Two with doubtful reactions have been excluded from consideration, as every other indication of syphilis was lacking, and they have healthy children over a year old. There were, therefore, 3.6 per cent. positive reactions; two of the four gave a history pointing to syphilis, while the other two gave no history at all suggestive.

CASE 1.—Mrs. J. contracted syphilis from her first husband, her first pregnancy resulting in a miscarriage at the sixth month. The second pregnancy resulted in a stillbirth at term, and the third (by the second husband) in an apparently healthy child. Previous to and during this pregnancy she received intensive treatment. The child is apparently healthy at the age of 2. She has recently been delivered of a child which shows at the age of 4 months signs of syphilis. Treatment was neglected until near the end of pregnancy.

CASE 2.—Mrs. P. gave a history suggestive of syphilis. Her first pregnancy resulted in an abortion, the second in a small child which lived only a few hours. The third terminated in craniotomy because of a large child in the presence of a contracted pelvis. At the third month of the fourth pregnancy, the diagnosis of syphilis was made clinically and serologically, active treatment was instituted, and a live child weighing 9½ pounds delivered by cesarean section after a labor test of twenty hours. The child is apparently healthy without antisyphilitic treatment.

CASE 3.—Mrs. C., primipara, gave a history negative for syphilis. She refused treatment and was delivered elsewhere. No information has been obtainable as to the result of her pregnancy.

CASE 4.—Mrs. B. was delivered of a full term macerated fetus in her first pregnancy. The second resulted in an abortion. She gave no history suggestive of syphilis.

In reviewing these cases one is struck by the large number in which there is a history of abortion or stillbirth. In all probability these are not syphilitic. Twenty-one of the 103 cases gave such a history, a percentage of 20.3+. It certainly does not seem reasonable to ascribe any large proportion of these accidents to a syphilis which has since become extinct, or is beyond the reach of clinical or serologic recognition. DeLee's observation that other infections than syphilis cause stillbirths has stimulated us (E. L. C.) to seek the cause of the accidents in focal infection.

Twenty-one cases, presented in the accompanying table, aside from the syphilitic, have a history of an abortion or stillbirth. This is a percentage of 19.6.

Our second series corresponds to that of Falls and Moore, except that there were no negro patients. It included 101 charity patients entering the Chicago Lying-In Hospital. Most of them were delivered in the hospital, but some left before delivery. Ten gave positive Wassermann reactions, a little less than 10 per cent. Of these two had active skin lesions and two gave a history pointing to syphilis. One gave a history of repeated miscarriages, and one had cardiovascular disease, from which a suspicion of syphilis might reasonably arise. The other four gave no history or sign of the disease, and would no doubt have escaped diagnosis except for the serum test. The fact that the percentage of syphilitics in the second series was so much higher than in the first corresponds with the higher proportion of syphilitics among charity patients. About a third of the women in this series acknowledged being unmarried, while 40 per cent. of those with positive serum tests were unmarried. Half of the syphilitic patients were in their first pregnancy.

ABORTIONS OR STILLBIRTHS IN TWENTY-THREE CASES ASIDE FROM THE SYPHILITIC

| | Parity | Live Children | Abortions or Stillbirths | Remarks |
|---|---|---|---|---|
| N. S. | 7 | 1 | 6 | Last case a double placenta at 6 mos. |
| R. M. | 5 | 1 | 4 | Bad teeth |
| E. B. | 2 | 1 | 1 | Full term; stillbirth |
| C. E. | 4 | 1 | 3 | Two full term stillbirths |
| A. L. | 3 | 1 | 2 | Second full term child died; status lymphaticus |
| B. | 3 | 1 | 2 | One craniotomy; one miscarriage |
| K. | 3 | 2 | 1 | Seven months premature |
| M. | 2 | 0 | 2 | First eclampsia, second abortion |
| H. | 3 | 0 | 3 | All below 4 months |
| T. | 2 | 1 | 1 | |
| K. | 9 | 2 | 7 | |
| G. | 3 | 2 | 1 | Retained placenta first and second abortion |
| B. | 1 | 0 | 1 | 4½ months; 10 abscessed teeth |
| C. | 4 | 1 | 3 | First criminal, second and third accidental |
| M. | 2 | 1 | 1 | Stillbirth |
| E. | 3 | 2 | 1 | First, three months |
| S. | 3 | 1 | 2 | |
| O. | 3 | 2 | 1 | Angular pregnancy |
| S. | 2 | 0 | 2 | |
| P. | 4 | 1 | 3 | First, O.K.; second, stillbirth; third and fourth, died in utero at six months; delivered at term |
| McE. | 2 | 1 | 1 | Vaginal infection |
| | 70 | 22 | 48 | |

The technic of our tests corresponds with the original Wassermann technic except in generally accepted changes, such as the use of multiple alcoholic extracts as antigens, and the titration of complement and fixation at room temperature for half an hour and then in the water bath at 37 C. for half an hour. In addition, the complement was titrated for its fixation power in the syphilitic system, and the strength of

1. Falls, F. H., and Moore, J. J.: The Value of the Wassermann Test in Pregnancy, J. A. M. A. **77**: 574 (Aug. 19) 1916.
2. Commiskey, L. J. J.: Am. J. Obst. **73**: 676 (April) 1916.
3. Menten, M. L.: Am. J. Obst. **78**: 514 (Oct.) 1918.
4. Adair, F. L.: Am. Jour. Obst. **78**: 678 (Nov.) 1918.

reaction controlled by a titration of a mixture of glycerinized positive serums.[5]

We had no false positives in eclamptics, as reported by Falls and Moore, but had several weak positive or doubtful reactions in cases which we finally concluded were nonsyphilitic. These seem to be more common in the pregnant than in the nonpregnant, but did not run parallel with toxicity, for they were observed in a number of healthy women with negative urinary findings, while they were absent in others distressingly toxic. They occurred much oftener with the heart antigens than with the syphilitic liver antigens.

The phenomenon reported by Menten, who observed positive reactions before parturition change to negative immediately after childbirth, has been observed by one of us (A. W. S.) in a woman whose positive reaction did not yield to treatment as intensive as was thought safe throughout pregnancy. Within a few days after delivery a frank negative was obtained, which again became positive in a few months in spite of treatment. The child is clinically and serologically negative at the age of 8 months.

The glycerinized positive control was checked in its work of protecting against too finely drawn tests by the use of 0.4 c.c. of serum, twice the maximum dose, as serum control. Anticomplementary action is very quickly shown by such a control, while, on the other hand, the danger of native amboceptor in such a quantity of serum was guarded against by testing each serum for amboceptor. The full dose of serum, 0.2 c.c., was combined with the full dose of blood suspension and one hemolytic titer of complement. If hemolysis resulted, the presence of at least 2.5 titers of native amboceptor was demonstrated, and no rabbit amboceptor was added to the tubes containing this serum. Since our serums have been inactivated for half an hour in the water-bath at 54 C., we have seen very few serums with this amount of native amboceptor.

In spite of the phenomenon of Menten, it is probable that the well known tendency toward latency of syphilis in women tends to produce a negative Wassermann reaction in a larger percentage of cases than in men, and we therefore feel certain that some syphilitics in both our groups escaped detection. Examination of the cord and placenta or of the dead infant will supplement the serum test in these cases. Accepting even our small percentage of positive results in the private cases for the general prevalence of syphilis among women, the estimate given by Pusey[6] would be swollen from 1,200,000 to 4,320,000 adult syphilitics in the United States. When the many women in the charity class and their high percentage of syphilitics are considered, an appalling figure is reached. The crying need for activity against this "third great plague," as it is called by Stokes, is today apparent to all. As an important stronghold of the enemy, we would emphasize the pregnant woman. If syphilis is diagnosed early, the lives of many children may be saved from destruction or deformity worse than death, and thousands of families every year preserved from the greatest torture of mind, as well as from bodily ills. Even though only 3 per cent. of the pregnant were found syphilitic, and only a third of these would escape detection by clinical means, the trouble and expense of the routine Wassermann tests in the pregnant are fully justified.

5. Stillians, A. W.: J. Cutan. Dis. **36**: 289 (May) 1918; Am. J. Syphilis **1**: 767 (Oct.) 1917.
6. Pusey, W. A.: Syphilis as a Modern Problem, p. 104.

SUMMARY

1. Our first series of private cases of pregnancy gave only 3.6 per cent. of positive Wassermann reactions.
2. Our second series of charity cases gave nearly 10 per cent. of positive reactions.
3. More than one third of these positive cases were detectable only by the serum examination.
4. Routine Wassermann reactions in pregnancy are amply justified by these findings.
5. A surprisingly large number of apparently nonsyphilitic women give a history of frequent abortions.
6. The Wassermann reaction should be checked by searching for the spirochete and by postmortem examinations when possible.

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## A NEW TREATMENT FOR THE MORPHIN HABIT

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It is common knowledge that a person addicted to the use of morphin may gradually increase the dose of the drug without suffering toxic effects, so that in a few months he may take with impunity a dose that originally would have been fatal. In other words, he establishes an immunity to the drug; and it seems probable that the immunity is due to the presence of an antibody or antitoxin in the blood.

When later the morphin is withdrawn, the antibody remains in the blood unneutralized, and according to the theory that is generally accepted, it is this antibody that gives rise to the characteristic symptoms of nervousness, leg pains, sweating, nausea, vomiting, diarrhea, etc. These symptoms are relieved when morphin is administered, and the amount required to give relief is precisely the dose to which the morphinist has habituated himself. A less amount relieves the symptoms only in part, while an amount in excess of it gives again the toxic symptoms of morphin. Thus a morphinist can estimate pretty accurately an unknown dose that has been given to him by a physician; and the physician, by observing the alleviation of the patient's symptoms, can titrate in a sense the patient's antibody much as he titrates complement in vitro.

So physicians have come to believe that a definite antibody to morphin is formed in the blood, and that the unneutralized antibody is the cause of the withdrawal symptoms. Another explanation sometimes offered for the occurrence of the withdrawal symptoms is that morphin disturbs the normal secretory and excretory functions of the body, and by its prolonged use thus induces an autotoxemia. But it is by no means clear why this toxemia should suddenly fulminate when the morphin is withdrawn, and the lack of explanation on this point materially weakens this theory.

But whether there is present an antitoxin or an autotoxin, it is evident that some form of toxin is present, and the withdrawal symptoms of sweating, vomiting, and diarrhea would indicate that the body is endeavoring to eliminate it.

### CUSTOMARY METHODS OF TREATMENT

The present treatment of chronic morphinism involves three principles, namely, catharsis, the rapid or gradual withdrawal of the drug, and the administration of belladonna or alkaloids derived from the belladonna group—the alkaloid most generally used being scopolamin. The purpose of catharsis is, of course, to effect an elimination of the toxins. The purpose of withdrawal of the drug is obvious. The purpose of the alkaloids seems to be to effect a stupor or intoxication and thus reduce the suffering caused by the withdrawal symptoms. Various other explanations are offered for the use of belladonna and the alkaloids, one being that the active principles of the belladonna group are physiologic antidotes capable of "unpoisoning" the patient. The explanation of "unpoisoning" seems a little fanciful.

With almost any form of treatment the patient suffers to some extent from the withdrawal symptoms of nervousness, restlessness, leg pains, nausea, vomiting, etc., and following the treatment there is a more or less protracted period of nervousness and insomnia. During the treatment, delirium may develop from the belladonna or scopolamin.

The Towns-Lambert treatment combines catharsis with the rapid reduction of morphin and the hourly administration of a mixture of belladonna, hyoscyamus and xanthoxylum.[1] Catharsis is effected with 5 grains of blue mass and five compound cathartic pills. When the bowels have moved freely, the patient is given two thirds or three fourths of his daily dose of morphin, and his initial dose of the belladonna mixture, which is given thereafter every hour through the day and night in increasing doses. Ten hours after the morphin has been given, the pills and blue mass are repeated, and when free catharsis has been effected, the patient is given one half of his former dose of morphin. In another ten hours the cathartics are again repeated, and after further free purging, the patient is given his morphin with the dose once more cut in half. This is the patient's last dose of morphin. Soon afterward there appears from the cathartics a characteristic green stool, and with its appearance the belladonna mixture is stopped and the patient is given castor oil to cleanse the intestinal tract. The treatment here sketched is modified to suit varying conditions.

The Sceleth treatment involves initial catharsis with the subsequent administration of a solution the chief ingredients of which are scopolamin and ethylmorphin hydrochlorid. The solution is tapered off toward the end of the treatment.

The Petty treatment involves catharsis, rapid reduction of morphin, and the administration of scopolamin.

The Sceleth and Petty treatments thus supplement catharsis and withdrawal by narcosis. The Towns-Lambert treatment supplements catharsis and withdrawal with a belladonna mixture that is given empirically and is supposed in some manner to relieve the craving for narcotic drugs. The treatment is presumed to relieve the craving for alcohol and tobacco as well as for morphin.

It is difficult to determine the value of the belladonna mixture of the Towns-Lambert treatment. Relative to this matter I can say that I have seen morphinists smoke constantly throughout the treatment when they have not expected to lose their appetite for tobacco, and I am convinced that none of them would voluntarily have given up morphin if they had expected to relinquish only their cigars. I am inclined to believe that suggestion is one of the secret ingredients of the belladonna mixture.

In thus criticizing the Towns-Lambert treatment, however, I do not mean to discredit it. The treatment possesses unmistakable merit, and I am sure that suggestion cannot eliminate toxins from a morphinist's blood stream. Possibly the toxins are neutralized to some extent by the belladonna mixture, and probably they are eliminated to a large extent by catharsis. Elimination would appear to be of special value for the reason that the withdrawal symptoms of sweating, vomiting and diarrhea represent an attempt at elimination by nature.

At any rate my faith has been largely in elimination, and the idea suggested itself to me that elimination could be greatly augmented by giving the patient intravenous infusions of physiologic sodium chlorid solution, for this solution would be eliminated by the kidneys and intestine, and should carry the toxins with it.

Another apparent advantage of the intravenous solution is that it would dilute the toxins of the blood stream. To illustrate this mathematically: A man weighing 140 pounds would have approximately 7 pints of blood, and an intravenous infusion of 2 pints of saline solution would dilute the toxins of the blood to approximately three fourths of their original concentration. From this dilution of the toxins one would expect to see an amelioration of the withdrawal symptoms. The dilution would, of course, be temporary, for additional toxins would pass to the blood stream from the body tissues, but these toxins would in turn be eliminated with the excess fluid.

### AUTHOR'S METHOD OF TREATMENT

On these purely theoretical considerations I decided to attempt the treatment of chronic morphinism solely by elimination, supplementing a catharsis of the intestinal tract with a catharsis of the blood stream brought about by repeated intravenous infusions.[2] The patients were volunteers treated gratuitously at Mount Airy Sanatorium through the generosity of the superintendent, Dr. George E. Neuhaus.

The treatment of a case is typically as follows: The patient is put to bed and his morphin stopped entirely. He is put on a semisolid or a liquid diet, and is given cathartics as prescribed in the Towns-Lambert treatment. He thus receives three or four cathartic courses, consisting of 5 grains of blue mass with five compound cathartic pills, at intervals of approximately eighteen hours. Some hours after the last of these cathartic courses he is given castor oil. The patient receives from two to four intravenous infusions a day according to his condition. The standard infusion consists of 1,000 c.c. of 0.9 per cent. sodium chlorid in sterile freshly distilled water.

During the first few days of treatment the patient is given enough chloral, usually about 30 grains, at bedtime to insure a night's sleep. Hypnotics are an important element in the treatment, for the sleep they induce not only blots out large periods of discomfort, but

1. The mixture consists of:

| | Gm. or C.c. | |
|---|---|---|
| Tincturae belladonnae (15 per cent.) | 62 | fl ℥ ij |
| Fluidextracti hyoscyami | | |
| Fluidextracti xanthoxyli | āā 31 | āā ℥ i |

2. The infusions were given from quart medicine bottles hung in an inverted position. A two-hole rubber stopper carries a short glass tube as an outlet for the solution, and a long tube reaching to the bottom of the bottle serves as an air inlet.

also fortifies the patient mentally and physically for the ordeal through which he is passing.

The semisolid or the liquid diet is continued as long as the patient feels any nausea, and he is kept in bed during the cathartic period and until all acute discomfort from the withdrawal of the morphin has disappeared.

As previously stated, the morphin is stopped entirely, and if at any time the patient complains unduly of his withdrawal symptoms, he is given a saline infusion instead of a hypodermic injection of morphin.

There seem to be no contraindications to the saline infusions, and patients have suffered no ill effects from receiving three or four infusions daily for a period of a week or more. One patient received infusions in thirteen days amounting to 50 per cent. of her body weight, and her physical condition improved greatly during this period.

The infusions do not produce a marked increase of arterial tension. An infusion of 1,000 c.c. is followed by an increase in blood pressure equivalent to about 5 mm. of mercury. The increase is of course temporary.

The repeated infusions do not produce anemia. There is a slight decrease in the red cell count and percentage of hemoglobin owing to the increase of the fluid element of the blood, but there is no destruction of the blood cells. The absence of anemia is clearly evidenced by the patient's marked improvement in color.

The infusions are followed by a marked decrease in the viscosity of the blood. The decreased viscosity lessens capillary resistance, and thus reduces the normal heart load. This is advantageous in reducing the tendency to cardiac weakness so often seen with the withdrawal of morphin. It is also advantageous in permitting the administration of large doses of chloral without embarrassment to the myocardium. It was not found necessary to give any of the patients cardiac stimulants.

Six patients were treated by the foregoing method. Their average age was 34 years. Their average period of addiction was twelve years, and their average daily dose of morphin, 7 or 8 grains. Three of them were addicted to the occasional use of cocain, and three of them had positive Wassermann reactions. The average patient was fourteen days in the sanatorium, and he received infusions during the first seven days. The average amount of saline solution administered to each patient during this period was 15,600 c.c. The average patient experienced discomfort from the withdrawal symptoms at different intervals during the first two or three days, but none of them can be said to have been markedly uncomfortable at any time. Most of them experienced considerable relief from the intravenous infusions, and thus the periods of discomfort preceding the infusions would amount to only a small total. After the stage of acute discomfort there followed a period of nervousness and sleeplessness. This nervousness was not constant, but manifested itself at occasional intervals for several days. The sleepnessness was not protracted, and the average patient took hypnotics for only four nights.

During the restless convalescent period, two of the patients were given the Towns-Lambert treatment (without morphin) as an experiment. Both of the patients had been addicts for more than twenty years, and their nervousness persisted at the end of the second week, at which time the Towns-Lambert treatment was given. The nervousness diminished considerably following this second treatment. Their improvement would point to some specific potency in the Towns-Lambert belladonna mixture, though in reasoning from cause to effect one must consider also the probable efficacy of a second course of cathartics, and also the influence of suggestion. Suggestion may have been quite a factor with these patients, for they knew the Towns-Lambert treatment to be fully accredited and the infusion treatment to be merely experimental.

In addition to the six patients treated by infusions, another six were given the Towns-Lambert treatment simultaneously with the infusions. Before the Towns-Lambert treatment was begun, the patients were placed under observation for twenty-four hours, and during this period were given small doses of morphin as their condition required in order to determine the minimum twenty-four hour dose necessary to keep them comfortable. The rapid reduction in accordance with the Towns-Lambert treatment then followed with this amount as a basis.

The six patients in this series were milder cases than those treated only by infusions, and some of the subjects were private patients at Mount Airy Sanatorium. Their average age was 40; their average period of addiction was nine years; and their average daily dose of morphin was 3½ grains, this dose being one-half the amount in the first series. Four of the patients occasionally used cocain. Two of them had positive Wassermann reactions.

The first two patients received infusions only when they manifested discomfort under the Towns-Lambert treatment. The remaining four received infusions from the start. The average patient was given five infusions, and in the average case the infusions were not continued beyond the third or fourth day. The average patient was discharged on the seventh day.

With this combination of the Towns-Lambert treatment and the infusion treatment the patients suffered about the same discomfort from the withdraw symptoms as those treated by infusions alone, but they recovered more quickly from the subsequent period of nervousness. Some of them manifested a definite euphoria on the third or fourth day, and stated that they had never felt better in years. Thus it would seem that the infusion treatment combined with the Towns-Lambert treatment is better than the infusion treatment alone; but in order to determine the matter definitely it would be necessary to take two equivalent series of cases instead of two series of rather dissimilar cases such as I employed in my experiments.

I give here a brief summary of the individual cases of the two series:

### SERIES I. PATIENTS TREATED BY INFUSIONS AND CATHARSIS

The patients in this series of cases were treated by infusions and catharsis, and their morphin was stopped entirely. When necessary they were given hypnotics during the first few days to combat insomnia. They were kept on semisolid or liquid diet while there was any tendency to nausea, and were kept in bed till all acute discomfort had subsided.

CASE 1.—A woman, aged 27, had used morphin for eight years, and was taking 8 grains a day hypodermically when presenting herself for treatment. The Wassermann test was strongly positive. She received seventeen infusions (each of 1,000 c.c.) during eight days of treatment. The first four

days she received 30 grains of chloral, or 15 grains of chloral with 15 grains of sodium bromid, at bedtime.

On the first day of treatment the patient was comfortable. On the second day she was restless during the afternoon and evening, and she vomited once or twice during the evening. On the third day she was restless and nauseated during the early morning, but she slept for several hours after receiving an infusion. She was restless again during the afternoon. After the third day she was allowed to be up and around. She felt a little nervous during the afternoons of the fourth and fifth days, but the nervousness was relieved by hot baths. After the fifth day she was free from nervousness, at ravenously and slept well. She was discharged the twelfth day.

CASE 2.—A man, aged 32, who had used morphin for eleven years and was taking 8 or 10 grains a day hypodermically, was given ten infusions over a period of five days. The first night he received 30 grains of chloral. The third night he received 15 grains. No hypnotics were administered the second night, or any night subsequent to the third. He had no trouble at any time with insomnia.

The patient was restless and nauseated during the evening of the first day, and vomited once or twice. He slept the greater part of the second day, and fell asleep while taking an infusion. He was comfortable on the third day, but on the fourth day felt nauseated after taking solid food. He was kept on a light diet for another couple of days, and had no further nausea or other discomfort. He was discharged on the thirteenth day.

CASE 3.—A physician, aged 37, who had contracted the morphin habit at 24, and had undergone several cures and several relapses, and occasionally used cocain, took his last cure seven months before entering the sanatorium, but one month before had recommenced the use of cocain and morphin. When admitted for treatment he was using 15 or 20 grains of cocain and about a grain of morphin daily.

He received a total of ten infusions in four days, and was given hypnotics the first three nights. He had some discomfort from nausea and leg pains on the second day, and was restless at times on the third day. He was discharged on the fifth day.

CASE 4.—A man, aged 43, had used morphin for twenty-four years, and was using 8 grains daily hypodermically when he presented himself for treatment. He was addicted to the occasional use of cocain. The Wassermann test was strongly positive.

With this patient the treatment was unnecessarily prolonged owing to the fact that he surreptitiously obtained morphin on the seventh day. He was a charity patient taking treatment under more or less pressure, and was never very wholehearted about giving up his morphin.

He received seventeen infusions during the first eight days, and four infusions on the four succeeding days. He received hypnotics only once—on the day following his self-administered dose of morphin. He was never markedly uncomfortable during the entire treatment, and he had no insomnia. His chief difficulty was a tendency to nausea and vomiting on taking solid food, and he was accordingly kept on liquid diet for a week. After the first day he frequently asked that his infusions be postponed, as he was feeling comfortable. But despite the fact that he evinced no acute withdrawal symptoms, he frequently complained of nervousness and restlessness. At the end of his second week he was therefore given a morphinless Towns-Lambert treatment as a matter of experiment. He showed considerable improvement after this treatment. He was discharged at the end of three weeks.

CASE 5.—A woman, aged 40, had used morphin for twenty years, and was taking from 8 to 12 grains a day hypodermically. She used cocain occasionally. The Wassermann test was strongly positive.

She received twenty infusions during the first eight days, and five infusions during the succeeding five days. The first five days she received 30 grains of chloral at bedtime. After this the hypnotic was tapered off, and during the following week the patient was at times troubled with sleeplessness.

On the first day of treatment the patient was entirely comfortable. On the second day she had definite withdrawal symptoms: restlessness, leg pains, nausea and vomiting. The same symptoms were present, though in a less degree, on the afternoon of the third day, but they were considerably relieved by the infusions. The patient had no acute withdrawal symptoms after the third day, but each afternoon she complained of nervousness and restlessness. The nervousness was relieved by hot baths, but as it continued to recur each afternoon, the patient was given a morphinless Towns-Lambert treatment at the end of two and a half weeks. She improved after this treatment, but was still restless at times. As stated, the patient had a positive Wassermann reaction, and it is possible that her malaise may have been partly due to her syphilitic condition. She was discharged at the end of three and a half weeks.

CASE 6.—A man, aged 27, who had used morphin for seven years, and was taking 10 grains a day hypodermically, received eleven infusions in four days. He was given hypnotics the first four nights. He was restless during the afternoon and evening of the second day, but had no acute withdrawal symptoms. He seemed quite comfortable at all other times, and was often singing and whistling. He was discharged at the end of a week.

### SERIES II. PATIENTS TREATED BY TOWNS-LAMBERT METHOD AND SALINE INFUSIONS

The patients in this series were given the routine Towns-Lambert treatment supplemented by saline infusions. Before treatment was begun, a patient was kept under observation to determine the minimum amount of morphin necessary to keep him comfortable for a twenty-four hour period. The initial dose then given with rapid reduction was two thirds of this minimum amount. Hypnotics were not necessary during the course of the Towns-Lambert treatment, since the patient was receiving morphin, and they were hardly practical, since the patient had to be disturbed every hour to receive his belladonna mixture.

CASES 1 and 2.—These two patients were men in their forties who had used morphin for about a year and were taking only 1 or 2 grains daily.

They were given the routine Towns-Lambert treatment, which was supplemented by two infusions during the last six or eight-hour period, this period being marked in both cases by considerable discomfort. The discomfort was not greatly relieved by the infusions, but on the following day both patients were in excellent condition and remarked on their well-being. Both patients were discharged on the fifth day.

CASE 3.—A man, aged 41, had used morphin for fifteen years and during this period had undergone several cures and several relapses. At times he indulged in cocain. When he presented himself for treatment he was using 8 grains of morphin a day by hypodermic injection.

The initial dose of morphin given in the Towns-Lambert treatment was 3 grains. He received nine infusions during the first five days of treatment.

On the second day the patient was restless for several hours before receiving his last dose of morphin. On the third day he was extremely nervous and uncomfortable during the latter part of the afternoon and early evening. He was then given 85 grains of chloral in broken doses, following which he slept intermittently through the night. After the third day he had no discomfort, and hypnotics were necessary only once subsequently. He was discharged the fifth day.

CASE 4.—A man, aged 26, who had used morphin for two and a half years, and was using 4 or 5 grains daily by hypodermic injection, and who occasionally used cocain, was given the Towns-Lambert treatment with an initial dose of 1½ grains of morphin. He was given seven infusions in four days. He showed no marked distress at any period of the treatment, though he was restless at times during the first four or five days. He had no difficulty from sleeplessness. He was discharged at the end of two weeks.

CASE 5.—A woman, aged 40, had used morphin for twenty-two years, and was taking 3 grains daily by hypodermic

injection when she presented herself for treatment. Occasionally she used cocain. The Wassermann test was strongly positive.

The patient was given the Towns-Lambert treatment with an initial dose of 1 grain of morphin. She received five infusions in three days.

The first night and the morning of the second day were marked by discomfort with some nausea and vomiting. (The patient was probably started with too small an initial dose of morphin.) The afternoon and evening of the second day were tolerably comfortable, though the patient at times complained of nausea. She managed to sleep the second night between her belladonna capsules. She was nervous and restless the third day, but experienced no acute withdrawal symptoms. She was given 15 grains of chloral and 15 grains of sodium bromid at bedtime, but spent a rather wakeful night. After the third day the patient had only one period of nervousness, this being on the fourth evening. She was given no further hypnotics. She was discharged the sixth day.

CASE 6.—A woman, aged 52, had used morphin for fifteen years, and was using 3 grains daily by hypodermic injection. At times she used cocain. The Wassermann test was strongly positive.

The patient was given the Towns-Lambert treatment with an initial dose of 1 grain of morphin. She received five infusions in three days. She was nervous and restless during the latter half of the second day. She was also nervous on the third day. There was some nausea accompanying the nervousness, but the patient vomited only once or twice. Her discomfort was considerably relieved by the infusions. She was given hypnotics on the third evening, but afterward slept well without them. There was no discomfort after the third day. The patient was discharged on the sixth day.

### BROADER ASPECTS OF MORPHINISM

We should bear in mind that 75 per cent. of morphinists have contracted their habit through the careless administration of morphin by physicians; consequently they are by-products from the practice of the medical profession. A majority of the remaining 25 per cent. owe their habit largely to the former careless sale of morphin consequent on government negligence.

In regard to the present position of the morphinist: When the Harrison Narcotic Act came into force in March, 1915, it automatically stopped the supply of morphin available to addicts through legitimate channels. It did not stop the morphinist's physiologic need for the drug, however, and it did not provide medical treatment to remove this need. Consequently, while beneficent in its intent and doubtless beneficent in its ultimate and total result, the act imposes unwarranted suffering on existing addicts.

Even the victims of the morphin habit are entitled to a square deal, and it would seem that the least that could be done to alleviate their misery would be to register them and license them to receive their morphin at the hands of a duly authorized physician or government agent. Such a procedure would have the additional advantage of stopping the illicit traffic in morphin.

It would be better to cure these addicts, however, than to license them; and they must be cured in order to be reformed, for their disability is more physical than moral. They were neither cured nor reformed with the enactment of the Harrison act; they were merely designated as the prey of illicit dealers. These dealers create more morphinists; and by their extortion they impel their victims to prostitution and crime. Thus they bring confusion into the reforms originally purposed by the Harrison act.

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## PNEUMONIA FOLLOWING INFLUENZA (AT CAMP PIKE, ARK.)

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CAMP PIKE, LITTLE ROCK, ARK.

The existence of an epidemic of influenza at Camp Pike was recognized when 214 cases of influenza were admitted to the base hospital, September 23. The epidemic was foreshadowed by a steady increase in the number of admissions to the base hospital diagnosed as acute bronchitis. This increase began about September 1, and on September 18 there were fifty admissions with this diagnosis.

Beginning September 23, the number of cases showed a sudden and alarming increase. September 27, there were 1,037 new cases, and the number continued in the neighborhood of 1,000 a day until October 3, when the final decline began. During the period from September 20 to October 19, there were 11,899 cases of influenza. Table 1 gives the number of cases of influenza by days from September 1 to October 31, including those cases diagnosed as acute bronchitis during the first part of September, and also the number of cases of pneumonia having onset on each day.

During the two months covered by the table there occurred 12,393 cases of influenza and 1,499 cases of pneumonia. Only two patients died with a diagnosis of uncomplicated influenza (not confirmed by necropsy), while of the patients with pneumonia, 466 died. Of the patients with influenza, therefore, 12.1 per cent. developed pneumonia, and the mortality for pneumonia was 31 per cent. The mortality for the epidemic as a whole was 3.8 per cent. of those attacked by influenza.

The most striking feature of the epidemic was the extremely rapid spread of the infection throughout the camp. Starting September 22 in a regimental area situated in the extreme southwestern corner of the camp, the disease had within four days appeared throughout the camp proper, and four days later appeared in two outlying encampments, situated respectively 1 mile north and 3 miles east of the main camp.

No single organization escaped the infection, and during the thirty days from September 20, 23.3 per cent. of the total population of the camp suffered from the disease. The figures given herewith are based on a detailed study of 11,725 cases occurring between September 20 and October 14, and comprise practically the whole of the epidemic.

The disease displayed a striking selective incidence among the men who had been in camp less than one month. During the period from August 20 to October 1 there had arrived in camp 23,216 new men, and during October 553 additional men arrived. Among these

new men there developed 7,268 cases of influenza, an attack rate of 30.6 per cent. There were in camp, October 1, 28,782 men who had been in camp prior to August 20. Of these, 4,462 developed influenza, an attack rate of 15.5 per cent., or almost exactly half the attack rate of the new men. This disparity between the attack rates of old and new men was true of both white and colored men.

As between white and colored men there were marked and interesting differences in the rates of attack. The total exposed population, including those in camp October 1, and those arriving during October, was 52,551 men, of whom 41,778 were white and 10,773 were colored. The white men developed 10,296 cases of influenza, a rate of 24.6 per cent., while the negroes developed 1,429 cases, a rate of 13.3 per cent.

That this difference in susceptibility is not due to any essential racial immunity is shown by the experience of a draft of 1,954 negroes who arrived in camp between September 23 and 28. Of these men, 1,860 were transferred between September 27 and September 30 to the negro tent colony at Fort Roots. In this camp at the time of their arrival there were 2,130 negroes, most of whom had been in camp six weeks or longer. There had been no recognized cases of influenza in this camp prior to the arrival of the new draft. September 30, one of the new men developed

TABLE 1.—NUMBER OF CASES OF INFLUENZA AND PNEUMONIA AT CAMP PIKE, ARK., FROM SEPT. 1 TO OCT. 31, 1918, BY DAYS OF ONSET

| Day September | Cases | | Day October | Cases | |
|---|---|---|---|---|---|
| | Influenza | Pneumonia | | Influenza | Pneumonia |
| 1 | (8)* | 1 | 1 | 864 | 126 |
| 2 | (8) | 3 | 2 | 1,214 | 142 |
| 3 | (13) | 2 | 3 | 857 | 113 |
| 4 | (14) | 1 | 4 | 572 | 129 |
| 5 | (9) | 3 | 5 | 262 | 86 |
| 6 | (11) | 3 | 6 | 252 | 89 |
| 7 | (20) | 4 | 7 | 226 | 93 |
| 8 | (16) | 3 | 8 | 193 | 76 |
| 9 | (23) | 1 | 9 | 224 | 42 |
| 10 | (25) | 3 | 10 | 132 | 66 |
| 11 | (25) | 4 | 11 | 141 | 54 |
| 12 | (15) | 1 | 12 | 72 | 34 |
| 13 | (27) | 4 | 13 | 36 | 15 |
| 14 | (27) | 7 | 14 | 44 | 13 |
| 15 | (30) | 10 | 15 | 12 | 9 |
| 16 | (40) | 10 | 16 | 21 | 19 |
| 17 | (37) | 7 | 17 | 13 | 8 |
| 18 | (62) | 5 | 18 | 17 | 8 |
| 19 | (42) | 11 | 19 | 16 | 9 |
| 20 | (50) | 12 | 20 | 18 | 11 |
| 21 | (57) | 10 | 21 | 13 | 5 |
| 22 | (89) | 13 | 22 | 5 | 6 |
| 23 | 214 | 15 | 23 | 11 | 11 |
| 24 | 436 | 13 | 24 | 3 | 5 |
| 25 | 885 | 25 | 25 | 8 | 7 |
| 26 | 797 | 16 | 26 | 0 | 3 |
| 27 | 1,037 | 23 | 27 | 3 | 1 |
| 28 | 992 | 30 | 28 | 0 | 1 |
| 29 | 993 | 40 | 29 | 3 | 3 |
| 30 | 1,166 | 35 | 30 | 1 | 0 |
| | | | 31 | 3 | 0 |
| Totals | | | | 12,393 | 1,499 |
| Died | | | | 2 | 466 |

* Cases in parentheses, admitted with diagnosis of acute bronchitis.

influenza, followed on the next day by forty-seven cases among the new men, and on the next, October 2, by 462 cases, including a considerable number among the old men. Between September 30 and October 14 there were 972 cases of influenza in the camp, with 107 cases of pneumonia. Of the 972 cases, 810 were in the men of the new draft and 162 in the old men in camp. The rate of incidence for the new men was 43.6 per cent., about as high as that of any organization in Camp Pike, while that of the old men was 7.6 per cent., approximately equal to that of negroes of similar length of service in Camp Pike.

The time of development of pneumonia in relation to influenza is shown in the table. In general, the peak of the curve of pneumonia followed approximately one week after that of influenza, although the highest single day for both coincided. The general incidence of pneumonia followed that of influenza, and the preponderance of new men among the pneumonia cases was even more striking than among the influenza cases. Of the pneumonia patients, 1,006, or 67.5 per cent., were new men, while 62 per cent. of the patients with influenza were new men. The rates of incidence of the two diseases in old and new men are given in Table 2.

TABLE 2.—INCIDENCE IN OLD MEN AND NEW MEN

| | Population | Influenza | | Pneumonia | |
|---|---|---|---|---|---|
| | | No. | Per Cent. | No. | Per Cent. |
| Old men | 27,782 | 4,462 | 15.6 | 493 | 1.7 |
| New men | 23,769 | 7,263 | 30.6 | 1,006 | 4.2 |
| All men | 51,551 | 11,725 | 22.7 | 1,499 | 2.9 |

Of the new men with influenza, 13.8 per cent. developed pneumonia, as against 11 per cent. of the old men.

The incidence of pneumonia in cases of influenza was much higher among the negroes than among the whites. Of 10,296 white patients with influenza, 12.7 per cent. developed pneumonia, while among 1,429 negroes with influenza, 283, or 19.8 per cent., developed pneumonia. The rate of fatality from pneumonia was slightly higher in white men than in negroes. Of 1,216 white pneumonia patients, 386, or 31.7 per cent., died, while of 283 negro pneumonia patients eighty, or 28.2 per cent., died.

September 24, the base hospital contained 2,789 patients; the hospital had been planned to care for 2,009 patients. From September 24 to 30 from 188 to 486 patients were admitted daily to the hospital, so that on September 30 the hospital contained 3,587 patients. October 5, the number of patients reached the maximum, 4,233. September 24, by order of the camp surgeon the milder cases of influenza were treated in barracks. Every agency for the receiving, the housing and the care of patients throughout the camp was strained by a demand far beyond that for which it had been planned. Patients were crowded in the infirmaries, in the ambulances, in the receiving room of the hospital, in the wards and even in corridors between the wards, where it was essential to shelter them. It was necessary to open and organize in great haste, with inadequate equipment, wards for the receipt of patients with pneumonia. The medical personnel of the hospital was large at the time; the nursing corps was organized for the care of 2,440 patients; one quarter of them (sixty-two of 240) were attacked by influenza.

The pressing need of diminishing the overcrowding of the hospital was immediately recognized by the commanding officer, and through the authorities of the camp, barracks previously used by three replacement regiments about a quarter of a mile distant were placed at the disposal of the hospital. Patients were moved from the overcrowded hospital into this annex as fast as the facilities available permitted. October 3, 523 patients were transferred to the annex; on the 4th, 452; on the 5th, thirty-two, and on the 6th, 387. In the main hospital, twenty wards for patients with pneumonia were added to the two that already existed. The installation of cubicles and other necessary measures required some time, and during the early period arrangements for the care of patients with pneumonia in some of the new wards were necessarily wholly unsatisfactory. With relief of overcrowding, condi-

tions rapidly improved. The influence of overcrowding on pneumonia will be discussed later.

### INFLUENZA

The influenza that has occurred here has been characterized by sudden onset with chilliness and sharp elevation of temperature, often from 103 to 105 F. There has been extreme prostration, severe backache, suffusion of the face, and injection of the conjunctivae. Coryza, pharyngitis and tracheitis with a harrassing cough have been almost invariable; epistaxis and slight hemoptysis, frequent. In the majority of cases the temperature has subsided after from two to five days, usually rather abruptly. About one third of the patients have developed purulent bronchitis.

Search has been made for *Bacillus influenzae* in a group of twenty-three patients from one to six days after the onset of the disease. From each individual a culture on blood agar (5 per cent. horse's blood in meat, infusion agar) has been made (*a*) from the nose, (*b*) from the throat and (*c*) from sputum; and (*d*) sputum has been injected into the peritoneal cavity of a white mouse.

TABLE 3.—PRESENCE OF B. INFLUENZAE IN TWENTY-THREE CASES OF INFLUENZA *

| Number | Day of Disease | Nose | Throat | Sputum Culture | Sputum Passed through Mouse |
|---|---|---|---|---|---|
| 1 | 1 | + | + | + | + |
| 2 | 4 | − | + | + | + |
| 3 | 5 | − | − | + | − |
| 4 | 3 | − | − | + | + |
| 5 | 3 | − | − | + | + |
| 6 | 4 | − | + | + | ? |
| 7 | 2 | − | + | − | ? |
| 8 | 4 | + | + | + | − |
| 9 | 5 | − | + | + | + |
| 10 | 2 | + | − | − | − |
| 11 | 2 | − | + | ? | + |
| 12 | 3 | ? | + | + | + |
| 13 | 3 | − | − | − | + |
| 14 | 2 | − | − | + | + |
| 15 | 3 | ? | − | − | + |
| 16 | 1 | − | + | + | + |
| 17 | 3 | − | + | − | + |
| 18 | 4 | + | + | ? | + |
| 19 | 6 | − | − | + | + |
| 20 | 1 | − | + | + | + |
| 21 | 2 | + | + | − | + |
| 22 | 4 | − | − | + | + |
| 23 | 3 | ? | − | − | + |
| Totals..... | | 5 | 13 | 14 | 18 |

* The interrogation point indicates that the plate was contaminated.

Multiple cultures have demonstrated in some instances in almost pure culture the presence of *B. influenzae* in all of these cases of early influenza. Passage of sputum through the white mouse has proved the most effective means of demonstrating the organism; cultures from the sputum or throat have been nearly as effective. There is some difficulty in demonstrating the organism in consequence of the minute size of colonies, which may be wholly overlooked by those not familiar with its cultural characters, in the presence of other organisms; for example, in the zone of hemolysis of the hemolytic streptococci the colonies become conspicuous.

### BRONCHITIS WITH INFLUENZA

A considerable number of those attacked by influenza develop bronchitis. Of 103 influenza patients kept under observation, thirty-six had purulent bronchitis. The sputum is profusely mucopurulent and sometimes streaked with blood. In these cases numerous moist râles may be heard. The sputum on direct smear or on culture almost invariably shows *B. influenzae*, often in great numbers.

In attempting to establish the relation of *B. influenzae* to influenza and its complications, we have borne in mind the observation made at Camp Funston that *B. influenzae* was found in the mouths of 35.1 per cent. of all healthy men examined and was present, in the absence of an epidemic of influenza, in the sputum of a very large proportion of those suffering with bronchitis. Our observations here have shown that the organism is invariably present in the upper respiratory passages of patients with influenza.

### PNEUMONIA WITH INFLUENZA

Pneumonia has occurred in 12.1 per cent. of all influenza patients in this camp, and all pneumonia patients have been treated in the base hospital. Among 103 influenza patients selected for observation from the onset of influenza, four developed clinical evidence of bronchopneumonia and three of lobar pneumonia.

The clinical features of pneumonia following influenza may be best described by division into three groups. It should be borne in mind, however, that the picture has been a complex one and that correct clinical interpretation is not always possible, since many cases do not conform sharply to any one type. These groups are: (1) bronchopneumonia; (2) lobar pneumonia, and (3) lobar pneumonia with purulent bronchitis.

In the first group, bronchopneumonia has usually developed gradually as a sequence to influenza in which purulent bronchitis has occurred, one condition passing into the next without sharp demarcation. In the second group apparent recovery from influenza has occurred, as evidenced by fall of temperature to normal. After from one to three days of normal temperature, typical lobar pneumonia with characteristic rusty sputum has developed suddenly. In the third group, lobar pneumonia has developed in cases of influenza that have been complicated by purulent bronchitis. Such cases have occasionally presented the picture of both lobar pneumonia and bronchopneumonia in the same individual.

Bacteriologic study has disclosed that all these types of pneumonia have been of pneumococcus origin in most instances. As described in greater detail below, some have been further complicated by a superimposed *Streptococcus hemolyticus* infection.

The bacteriology of the sputum early in the disease has been studied by inoculation of white mice and by direct cultures. The occurrence of pneumococci, *B. influenzae* and *Streptococcus hemolyticus* in sixty-nine cases of lobar pneumonia has been as follows:

Pneumococcus Type I, nine times (once with Type IV), or 13.1 per cent.; Type II, three times, or 4.3 per cent.; Type II atypical, fifteen times, or 21.7 per cent.; Type III, five times (once with Type IV), or 7.3 per cent; Type IV (alone), thirty-seven times, or 53.6 per cent.

*Streptococcus hemolyticus* has been found three times, or 4.3 per cent., in all three instances associated with pneumococcus Type IV.

*B. influenzae* has been found forty-three times, or 62.2 per cent., always associated with pneumococcus (Type I, six times; II, once; II atypical, ten times; III, twice, and IV, twenty-four times).

Pneumococcus Types I and II, which have a predominant part in the production of the pneumonia of civil life, have been present in a relatively small proportion of cases, whereas Type II atypical and Types III and IV are found with 82.6 per cent. of cases.

The bacteriology of the sputum in forty-three cases of bronchopneumonia was as follows:

Pneumococcus Type I, none; Type II, once, or 2.3 per cent.; Type II atypical, three times, or 7 per cent.; Type III, three times, or 7 per cent.; Type IV, thirty times, or 69.8 per cent.

*Streptococcus hemolyticus* has been found six times, or 14 per cent., twice with pneumococcus Type IV and four times with no pneumococci.

*B. influenzae* has been found thirty-eight times, or 88.4 per cent., associated with pneumococci thirty-three times (Type II, once; II atypical, three times; III, three times; IV, twenty-six times); with *Streptococcus hemolyticus* three times, and alone twice.

Here again pneumococcus Type IV has been found predominant, being present in more than two thirds of the cases. *Streptococcus hemolyticus* unassociated with pneumococci has been found in 9.3 per cent. of these cases. *B. influenzae* unaccompanied by pneumococci or hemolytic streptococci was present in two cases; but in view of observations made at necropsy, it is doubtful if this organism alone was responsible for pneumonic consolidation of the lungs.

### PATHOLOGY AND BACTERIOLOGY OF PULMONARY LESIONS FOUND AT NECROPSY

The characters of the group of pneumonias that have occurred in association with the present outbreak of influenza may be defined by the pulmonary lesions found at necropsy, described in relation to the associated bacteria.

Two hundred necropsies have been performed during the outbreak of pneumonia. For the purpose of the present report it has seemed desirable to analyze seventy-nine cases which, occurring with few exceptions in sequence at the height of the outbreak, have been subjected to careful bacteriologic study. Cultures have been made from the heart's blood, from the lung and from a bronchus. When the hemolytic streptococcus has been found in the lung it has usually been demonstrable in the blood. The number of instances in which *B. influenzae* has been obtained in cultures would have been diminished more than half if cultures from the mucosa of the bronchi had not been made.

### CHANGES IN THE BRONCHI

Necropsies have shown the presence of purulent bronchitis in a large proportion of those who have died with pneumonia during the course of the present epidemic of influenza. When edema of the lungs is present, the content of the small bronchi is not usually purulent, though the mucosa may be intensely injected. *B. Influenzae* can be grown with few exceptions from the mucopurulent material that wells out of the cut bronchi or from material scraped with a platinum loop from the main branches. In twenty-seven of thirty instances of purulent bronchitis from which cultures were made at necropsy, *B. influenzae* was found.

When purulent bronchitis is found, the lungs are very voluminous and preserve the shape and size of the thoracic cavity after removal; they show little tendency to collapse, even when cut. Most of the affected lungs, being from men who have come from rural districts, are pale pink and almost wholly free from coal pigment. After section a small droplet of mucopurulent fluid marks the site of each bronchus or bronchiole and doubtless explains the failure of the lung to collapse. The cyanosis of the patients with the disease is doubtless referable in part at least to the same change. The mucosa of the bronchi is intensely injected. Further evidence of severe injury to the bronchi is the frequent occurrence of a zone of hemorrhage about the smaller bronchi, particularly in the lower lobes. At times this zone of hemorrhage gives place to an encircling zone of pneumonic consolidation. Further evidence of profound injury to the bronchial wall is the dilatation that the small bronchi undergo. Bronchiectasis is most conspicuous in the basal part of the lower lobes, and is usually more advanced on the left side than on the right. Small bronchi with no cartilage in their wall may reach a diameter of 0.5 cm. More advanced bronchiectasis has been found in several necropsies performed late in the outbreak.

Among seventy-nine necropsies, selected from the 200 performed, because they have been in sequence and accompanied by careful bacteriologic study, there have been thirty-six instances of lobar pneumonia, nineteen instances of bronchopneumonia, one instance of associated lobar pneumonia and bronchopneumonia, and twenty-three instances of pneumonia with suppuration of lung tissue.

### LOBAR PNEUMONIA

A group of thirty-six cases of pneumonia, taken at necropsy in sequence and studied bacteriologically, gives further knowledge of the bacteriology of the disease as it has occurred here. The results of this study have been as follows:

Pneumococcus Type I, three times; Type II, none; Type II atypical, five times; Type III, six times; Type IV, nineteen times; total, thirty-three, or 91.7 per cent.

*Streptococcus hemolyticus* with pneumococci, ten times; with no pneumococci, three times; total, thirteen, or 36.1 per cent.

*B. influenzae* thirty-one times, or 86.1 per cent.

*B. influenzae* has been present with few exceptions. Of pneumococci, which are frequently found in the mouths of healthy men, Type II atypical and Types III and IV are predominant, Type IV occurring in more than half of all cases, whereas Type I has been found only three times in the present series, and Type II has been found in no typical instance of lobar pneumonia. Hemolytic streptococci have been found in approximately one third of those cases of lobar pneumonia that have been unassociated with gross evidence of suppuration. It seems probable that the organism has invaded the lung late in the disease, and doubtless the micro-organism in many instances has had an important part in producing the fatal issue. This subject will be considered later when ward infection is discussed. When the hemolytic streptococcus has been unassociated with the pneumococcus it is probable that the latter has disappeared from that part of the lung from which the culture has been taken.

### BRONCHOPNEUMONIA

Two varieties of bronchopneumonia have been observed repeatedly. They do not include all of the instances of bronchopneumonia that occurred: (*a*) Bronchopneumonia may cause confluent consolidation of large parts of lobes; patches of consolidation, accurately limited to the secondary lobules of the lungs, occur. The larger patches of consolidation are sharply limited by lobule boundaries so that the consolidated tissue on the cut section projects conspicuously above the air-containing lung substance. Even within the large consolidated areas, which are blackish red, red or grayish red and finely granular, the lobules are well defined; but there is no thickening of the interstitial tissue. Two instances of pneumonia due to pneumococcus Type II were of this character. In three other cases the lesion was caused by pneumococcus Type IV. (*b*) This confluent lobular consolidation is not the pre-

dominant variety, and disseminated nodules or patches of reddish, gray or yellow consolidation are more commonly seen. The bacteriology of nineteen cases of bronchopneumonia has been as follows:

Pneumococcus Type I, none; Type II, twice; Type II atypical, none; Type III, none; Type IV, ten times; total, twelve, or 70.6 per cent.

*Streptococcus hemolyticus* with pneumococci, seven times; with no pneumococci, five times; total, twelve, or 70.6 per cent.

*B. influenzae*, seventeen times, or 89.4 per cent.

Pneumococci doubtless have a predominant part in the production of the disease, and hemolytic streptococci act as secondary invaders. Nevertheless it is possible that hemolytic streptococci in the presence of influenza may independently invade the lung and produce bronchopneumonia without suppuration.

### SUPPURATIVE PNEUMONIA

Suppuration has occurred in more than one fourth of the cases that have been examined postmortem. Three varieties of suppurative lesion have been found.

(*a*) Localized abscess formation within a patch of pneumonic consolidation. A patch of consolidation about one abscess is occasionally the only evidence of pneumonia, but more frequently there are multiple patches of bronchopneumonia. The abscess or abscesses are usually situated immediately below the pleura, often separated from the cavity by remains of the membrane no thicker than tissue paper, and the cavity is the site of purulent pleurisy with effusion varying from several hundred up to 1,700 c.c. In all but one of eleven cases of abscess with bronchopneumonia, hemolytic streptococci were found both in the blood of the heart and in the affected lung. In the one exceptional case, pneumococcus Type IV was obtained from the blood; no growth was obtained on the plate inoculated from the lung, and hemolytic streptococci with *B. influenzae* were found in the bronchus. *B. influenzae* was found in the bronchi (six) or in the lung (two) in all but three of these eleven cases. There can be no doubt that the suppurative process due to hemolytic streptococci was in some instances superimposed on pneumonia caused by pneumococci. In one instance, associated pneumococcus Type II was present in blood, lungs and bronchus; in one instance, pneumococcus Type IV was present in blood and bronchus. Of less significance has been the demonstration of associated pneumococci, Type II atypical or Type IV, in the bronchi or lungs (three instances).

(*b*) Pneumonia with suppuration of the interstitial tissue. In association with bronchopneumonia (three times), with typical lobar pneumonia (twice) or with all defined patches of consolidation (three times), probably best classified as bronchopneumonia, suppuration of the interstitial tissue of the lung has occurred eight times among our cases with completed bacteriologic examination. The interstitial septums appear as conspicuous yellow lines from which purulent fluid may be scraped. The septums are usually swollen to a thickness of about 1 or 2 mm., but wide lines of suppuration 0.5 cm. across are seen. Edematous swelling of septums outside of the consolidated tissue is not infrequently found. These suppurating septums extend up to the pleura, and the overlying lymphatics are often widely distended with fluid. Purulent pleurisy usually with copious effusion up to 1,900 c.c. has been found. In seven of these eight cases, hemolytic streptococci were found both in the heart's blood and in the affected lung. In one instance of lobar pneumonia with interstitial suppuration, we found pneumococcus Type IV with no hemolytic streptococci in the heart's blood and lungs. By unfortunate error, no culture from the affected lung is recorded. The relation of the lesion to associated infection with pneumococci is important. Pneumococcus Type II was found in one instance associated with hemolytic streptococci in the heart's blood, lung and bronchus. In one instance, pneumococcus Type II atypical with *B. influenzae* was found in the sputum during life unassociated with hemolytic streptococci, whereas three days later pneumococci were not demonstrable in the lungs or bronchi, and hemolytic streptococci were found in blood, lungs and bronchus. In another case, pneumococcus Type IV and hemolytic streptococci were found in the sputum during life, whereas after death five days later pneumococci had apparently disappeared and hemolytic streptococci were found in the blood and the bronchus, with *B. influenzae* in the latter situation.

(*c*) Multiple abscesses clustered about bronchi. In four instances in the group of cases under consideration, suppuration has occurred within bronchopneumonic patches clustered about a medium sized bronchus. These abscess cavities in communication with the bronchus are several millimeters up to 0.5 cm. in diameter, and are surrounded by gray, consolidated tissue. The patch of consolidation studded with abscesses may be scarcely more than 5 cm. across, but a much larger area may be involved. There has been no empyema nor plural effusion in these cases.

The bacteriology of the four cases cited has been as follows:

NECROPSY 280.—Hemolytic streptococci were found in the heart's blood, in consolidated lung tissue and in the bronchus. In the bronchus were found *B. influenzae* and a few staphylococci. Culture from the abscess was contaminated.

NECROPSY 322.—The blood was sterile. *Staphylococcus aureus* was obtained from consolidated lung; *Staphylococcus aureus* and pneumococcus Type III were obtained from the abscess.

NECROPSY 329.—The blood was sterile. *Staphylococcus aureus* and pneumococcus Type IV were obtained from the abscess; *B. influenzae*, *Staphylococcus aureus* and pneumococcus Type IV from the bronchus.

NECROPSY 333.—The blood contained pneumococcus Type II atypical; *Staphylococcus aureus* and pneumococcus Type II atypical were obtained from the abscess; *Streptococcus hemolyticus* from the lung on the opposite side; *Staphylococcus aureus*, *B. influenzae* and a few hemolytic streptococci from the bronchus.

The foregoing observations indicate that *Staphylococcus aureus* may be engrafted on a pneumococcus pneumonia and cause suppuration in clustered foci, unaccompanied by empyema.

### WARD INFECTION

*Transmission of Streptococcus Pneumonia.*—The fatal effect of the necessary overcrowding of this hospital is well shown by a comparison of the death rate from pneumonia in wards, on the one hand, which had long been organized for the care of patients with pneumonia, and in wards, on the other hand, which were opened for patients with pneumonia and immediately overfilled at a time when the hospital was overwhelmed by the epidemic of influenza.

Ward 3 was provided with cubicles and conducted by medical officers, nurses and enlisted corps men accustomed to the care of patients with pneumonia. The figures in Table 4 show the number of patients in the ward each day from September 6 to October 5, the number of patients admitted each day and the number of deaths among patients admitted on the corresponding day. The first period of ten days immediately preceded the present outbreak of pneumonia (Table 1). During the second period of ten days the incidence of pneumonia gradually increased, and during the third period maintained its maximum.

TABLE 4.—PNEUMONIA IN WARD 3

| | | Number of Patients in Ward | Number of Patients Admitted Each Day | Number of Patients Admitted on Corresponding Day Who Subsequently Died * | Total Deaths Among Patients Admitted During Period of Ten Days | | Percentage of Deaths Among Patients Admitted During Period of Ten Days |
|---|---|---|---|---|---|---|---|
| Sept. | 6 | 19 | 1 | 0 | | | |
| | 7 | 20 | 2 | 0 | | | |
| | 8 | 18 | 0 | 0 | | | |
| | 9 | 17 | 1 | 1 | | | |
| | 10 | 15 | 0 | 0 | Necropsy: | | |
| | 11 | 17 | 2 | 2 | 3 Pneumococcus | 3 | 27.2 |
| | 12 | 19 | 2 | 0 | Strep. hem. | 0 | |
| | 13 | 20 | 1 | 0 | | | |
| | 14 | 20 | 1 | 0 | | | |
| | 15 | 21 | 1 | 0 | | | |
| | | Total..... | 11 | | | | |
| | 16 | 25 | 6 | 2 | | | |
| | 17 | 31 | 8 | 3 | | | |
| | 18 | 38 | 6 | 2 | | | |
| | 19 | 42 | 6 | 1 | Necropsy: | | |
| | 20 | 45 | 3 | 1 | Pneumococcus | 13 | |
| | 21 | 51 | 7 | 3 | 16 Strep. hem. | 1 | 30.7 |
| | 22 | 55 | 9 | 1 | Undetermined | 2 | |
| | 23 | 60 | 5 | 3 | | | |
| | 24 | 57 | 0 | 0 | | | |
| | 25 | 57 | 2 | 0 | | | |
| | | Total..... | 52 | | | | |
| | 26 | 60 | 3 | 0 | | | |
| | 27 | 57 | 0 | 0 | | | |
| | 28 | 60 | 3 | 2 | | | |
| | 29 | 60 | 2 | 0 | Necropsy: | | |
| | 30 | 60 | 3 | 1 | Pneumococcus | 5 | |
| Oct. | 1 | 55 | 2 | 1 | 8 Strep. hem. | 1 | 34.7 |
| | 2 | 59 | 4 | 2 | Undetermined | 2 | |
| | 3 | 58 | 0 | 0 | | | |
| | 4 | 56 | 1 | 0 | | | |
| | 5 | 61 | 5 | 2 | | | |
| | | Total..... | 23 | | | | |

* In this and in the following three tables, these figures do not indicate the number of deaths on the corresponding dates but represent deaths which eventually occurred among patients admitted on these dates.

It is noteworthy that the death rate from pneumonia among those admitted during the first ten days was 27.2 per cent. at a time when the ward contained from fifteen to twenty-one patients. It increased during the second ten days, when the ward contained from twenty-five to sixty patients, to 30.7 per cent. With further increase of the ward population to from fifty-five to sixty-one, the death rate among those admitted during this period rose to 34.7 per cent. If the case of pneumonia due to infection with hemolytic streptococcus which occurred in each of the second and third periods be omitted, the figures for the three periods will be, respectively, 27.2, 28.8 and 30.4 per cent. In spite of the overcrowding of the ward, the introduction of two cases of streptococcus pneumonia under the favorable conditions existing in the ward did not cause an outbreak of the infection.

Ward 8 had long been used for the care of colored patients with pneumonia. Cubicles were in use and precautions were taken against the spread of infection.

During the period from September 1 to September 20, all new patients with pneumonia admitted were treated on the porch of the ward, the remaining population of the ward being largely convalescents who were placed inside. During the period from September 21 to October 5, when the influenza epidemic was at its height, the ward rapidly filled with active cases of pneumonia and became distinctly crowded. Nevertheless, no outbreak of secondary infection with the hemolytic streptococcus occurred.

Ward 2 was opened, September 28, during the period in which twenty new wards for pneumonia were organized. From September 26 to October 1, the cubicle system was not in use, the ward was crowded, organization was imperfect, and few precautions were taken to prevent the transfer of infection from one patient to another. October 2, the cubicle system was introduced, and strict and efficient precautions for the prevention of infection were instituted.

Among patients admitted between September 26 and 28 there was a ward epidemic of streptococcus pneumonia. Nine of the fifty-seven patients admitted to the ward between September 26 and October 1 were shown by examination of the sputum to have pneumococcus pneumonia free from hemolytic streptococci. All died, seven with infection by the hemolytic streptococcus, one with what was presumably an acquired infection with pneumococcus Type III (pneumococcus Type IV was found in the sputum on admission), and one with undetermined cause (no necropsy was held). The sputum of no other patients in this ward was examined on admission.

September 29 (the beginning of the second period), the porch of the ward was put into use, and of twelve patients admitted on this date eleven were put on the porch. Of these eleven patients, eight recovered and three died, of whom two were transferred to beds within the ward on the day after admission. The use of the porch doubtless explains the diminished mortality of this period.

From October 5 to 7 the ward was closed to further admissions, save six patients transferred from Ward 1 seriously ill; of these all died. After October 7,

TABLE 5.—PNEUMONIA IN WARD 8 (COLORED)

| | | Number of Patients in Ward | Number of Patients Admitted Each Day | Number of Patients Admitted on Corresponding Day Who Subsequently Died | Total Deaths Among Patients Admitted During Two Periods | | Percentage of Deaths Among Patients Admitted During Two Periods |
|---|---|---|---|---|---|---|---|
| Sept. | 1 | 48 | 1 | 0 | | | |
| | 2 | 47 | 2 | 0 | | | |
| | 3 | 45 | 0 | 0 | | | |
| | 4 | 47 | 4 | 0 | | | |
| | 5 | 45 | 0 | 0 | | | |
| | 6 | 29 | 3 | 0 | | | |
| | 7 | 25 | 2 | 0 | | | |
| | 8 | 28 | 2 | 0 | | | |
| | 9 | 27 | 0 | 0 | Necropsy: | | |
| | 10 | 26 | 0 | 0 | 2 Pneumococcus | 2 | 8 |
| | 11 | 26 | 0 | 0 | Strep. hem. | 0 | |
| | 12 | 26 | 1 | 0 | | | |
| | 13 | 27 | 1 | 0 | | | |
| | 14 | 27 | 0 | 0 | | | |
| | 15 | 31 | 4 | 0 | | | |
| | 16 | 32 | 1 | 1 | | | |
| | 17 | 19 | 2 | 0 | | | |
| | 18 | 19 | 0 | 0 | | | |
| | 19 | 20 | 2 | 1 | | | |
| | 20 | 20 | 0 | 0 | | | |
| | | Total.... | 25 | | | | |
| | 21 | 26 | 6 | 3 | | | |
| | 22 | 31 | 5 | 3 | | | |
| | 23 | 36 | 5 | 1 | | | |
| | 24 | 40 | 4 | 1 | | | |
| | 25 | 43 | 5 | 1 | | | |
| | 26 | 44 | 3 | 1 | Necropsy: | | |
| | 27 | 45 | 1 | 0 | Pneumococcus | 10 | |
| | 28 | 47 | 2 | 1 | 20 Strep. hem. | 1 | 33.9 |
| | 29 | 48 | 1 | 1 | Undetermined | 10 | |
| | 30 | 46 | 0 | 0 | | | |
| Oct. | 1 | 50 | 4 | 0 | | | |
| | 2 | 52 | 4 | 1 | | | |
| | 3 | 58 | 6 | 3 | | | |
| | 4 | 62 | 5 | 1 | | | |
| | 5 | 64 | 8 | 3 | | | |
| | | Total..... | 59 | | | | |

admissions were limited to patients with pneumonia in whom throat swab had demonstrated *Streptococcus hemolyticus*.

Ward 1 was opened, September 24. During the period from September 24 to October 1, the cubicle system was not in use and there were few precautions to prevent transmission of infection. October 2, the cubicle system was installed, and somewhat insufficient

TABLE 6.—PNEUMONIA IN WARD 2

| | Number of Patients in Ward | Number of Patients Admitted Each Day | Number of Patients Admitted on Corresponding Day Who Subsequently Died | | Total Deaths Among Patients Admitted During Period of Three Days | | Percentage of Deaths Among Patients Admitted During Period of Three Days |
|---|---|---|---|---|---|---|---|
| Sept. 26 | 10 | 10 | 7 | | Necropsy: | | |
| 27 | 27 | 17 | 10 | 27 | Pneumococcus | 0 | 67.5 |
| 28 | 40 | 13 | 10 | | Strep. hem. | 23 | |
| | | | | | Undetermined | 4 | |
| | Total..... | 40 | | | | | |
| 29 | 51 | 12 | 2 | | Necropsy: | | |
| 30 | 49 | 1 | 1 | 6 | Pneumococcus | 2 | 35.3 |
| Oct. 1 | 43 | 4 | 2 | | Strep. hem. | 2 | |
| | | | | | Undetermined | 2 | |
| | Total..... | 17 | | | | | |
| 2 | 47 | 6 | 2 | | Necropsy: | | |
| 3 | 42 | 0 | 0 | 4 | Pneumococcus | 2 | 40.0 |
| 4 | 41 | 4 | 2 | | Strep. hem. | 1 | |
| | | | | | Undetermined | 1 | |
| | Total..... | 10 | | | | | |

precautions against the spread of contagion were instituted. Beginning October 6, the ward was closed to further admission. Table 7 is divided into two periods, the first ending September 29, because on September 29 and 30 four patients infected with hemolytic streptococci were admitted to the ward. Deaths that occurred (with no reference to date of admission) prior to September 30 were all due to pneumococcus with one exception, namely, a patient entering the ward on September 26 and dying several hours later.

Hemolytic streptococci introduced into Ward 1 containing patients suffering with pneumonia due, as our experience here has shown, to pneumococci, has produced an epidemic of secondary infection with streptococci. Though the ward was evidently in great danger of infection from September 24 to 29, as the result of unfavorable conditions, none appears to have occurred; but with the introduction of the micro-

TABLE 7.—PNEUMONIA IN WARD 1

| | Number of Patients in Ward | Number of Patients Admitted Each Day | Number of Patients Admitted on Corresponding Day Who Subsequently Died | | Total Deaths Among Patients Admitted During Period of Three Days | | Percentage of Deaths Among Patients Admitted During Period of Three Days |
|---|---|---|---|---|---|---|---|
| Sept. 24 | 13 | 7 | 2 | | | | |
| 25 | 35 | 15 | 4 | | Necropsy: | | |
| 26 | 44 | 6 | 3 | | Pneumococcus | 5 | |
| 27 | 42 | 2 | 0 | 11 | Strep. hem. | 3 | 32.3 |
| 28 | 39 | 1 | 0 | | Undetermined | 3 | |
| 29 | 42 | 3 | 2 | | | | |
| | Total..... | 34 | | | | | |
| 30 | 56 | 15 | 10 | | | | |
| Oct. 1 | 54 | 2 | 1 | | Necropsy: | | |
| 2 | 50 | 8 | 3 | | Pneumococcus | 6 | |
| 3 | 51 | 3 | 2 | 24 | Strep. hem. | 14 | 50.0 |
| 4 | 56 | 7 | 5 | | Undetermined | 4 | |
| 5 | 56 | 5 | 3 | | | | |
| | Total..... | 40 | | | | | |

organism, September 29 and 30, widespread dissemination of fatal infection was immediate.

The occurrence of ward infection is well shown by the bacteriologic examination of the heart's blood and lungs at necropsy. Up to October 6, necropsies were performed on nearly all patients dying with pneumonia. The results of bacteriologic examination at necropsy on patients dying in pneumonia wards is given in Table 8.

The figures demonstrate that routine necropsies with bacteriologic examination of the blood and lungs of every patient that has died with pneumonia furnishes a certain means of recognizing the occurrence of ward infection with hemolytic streptococci. This means of checking the results of bacteriologic examination of the throat and sputum should never be neglected. The recognition of suppurative pneumonia, even when no cultures are made at necropsy, will indicate that pulmonary infection with hemolytic streptococci exists. It is obviously essential to separate pneumonia patients harboring hemolytic streptococci in the mouth from those that are free from this organism; but the existence of hemolytic streptococci in the mouth of patients with pneumonia is not conclusive evidence that the lung has been invaded.

These necropsies, with the accompanying bacteriologic studies, gave us the first conclusive evidence that the pneumonia in this hospital following influenza was subject to secondary invasion with hemolytic streptococci. They showed that Ward 3 had been maintained almost free from pyogenic infection; they forced the conviction that all patients who might subsequently be admitted to Ward 2 would with relatively few excep-

TABLE 8.—BACTERIOLOGIC FINDINGS IN PATIENTS DYING IN PNEUMONIA WARDS *

| | No Hemolytic Streptococci Found | Hemolytic Streptococci Found |
|---|---|---|
| Ward 1 | 12 | 7 |
| 2 | 4 | 24 |
| 3 | 18 | 1 |
| 4 | 0 | 1 |
| 5 | 1 | 0 |
| 6 | 1 | 0 |
| 7 | 0 | 1 |
| 8 | 11 | 0 |
| 19 | 6 | 2† |
| 20 | 0 | 1 |
| 22 | 2 | 0 |
| 26 | 0 | 1 |
| 35 | 0 | 1 |
| 49 | 1 | 0 |
| Total | 56 | 39 |

* With the exceptions of Wards 1, 2, 3 and 8, these wards had been opened less than one week.

† One of these cases of streptococcus pneumonia was the wardmaster of Ward 2, whose illness began, October 1, during the period of severe infection of this ward.

tions die with it. The ward was closed. The grave danger to patients entering Ward 1 was recognized, and this ward also was closed to subsequent admissions. The throats of all the 900 patients in the hospital were swabbed as rapidly as accessible facilities permitted, and patients harboring hemolytic streptococci were separated from those that were free from the micro-organism.

*Transmission of Pneumococci.*—The foregoing observations have demonstrated that streptococcus pneumonia may spread by contagion throughout an entire ward. Subsequent observations have demonstrated that pneumococci may be transmitted in the same way. Opportunity to obtain this evidence has been favored by the predominance of Types IV, III and II atypical among the pneumonias occurring here. Among cases of pneumonia of which the type has been determined between September 6 and October 1, only six instances of Type II pneumonia were found. Two of these cases occurred in Ward 3, and there is evidence that the disease was transmitted from these patients to three others in adjacent beds.

Infection with pneumococcus Type II occurred in a patient, Private P., recovering from pneumonia caused by pneumococcus Type IV. This infection with pneumococcus Type II was apparently acquired from a patient, Private Sw., occupying an adjacent bed.

Private Sw. was admitted to Ward 3 and placed in Bed 3, September 16, one day after the onset of pneumonia. Pneumococcus Type II was found in his sputum. His crisis occurred, September 21, on the sixth day of his illness. At the time Sw. was admitted, Private P. occupied Bed 5, separated by one bed from Sw.; he had been admitted, September 9, and had bronchopneumonia with signs of consolidation in the left lower lobe. Pneumococcus Type IV was found in his sputum. A crisis occurred, September

TABLE 9.—REPORT OF TWO CASES OF PNEUMONIA

| Name | Admitted | Bed Occupied | Pneumococcus in Sputum on Admission | Course of Disease | Pneumococcus Found at Necropsy |
|---|---|---|---|---|---|
| Private Sw. | Sept. 16 | 3 | Type II | Crisis, Sept. 21 | |
| Private P. | Sept. 9 | 5 | Type IV | Crisis, Sept. 14; second attack of pneumonia, Sept. 24; death, Sept. 30; lobar pneumonia | Type II |

14, and the temperature remained normal until September 24, save for a sharp rise, September 20 to 21, lasting eighteen hours. A second attack of pneumonia began, September 24, and death occurred, September 30. Necropsy disclosed the presence of lobar pneumonia with gray hepatization of the greater part of the right lower lobe and of the left lung. Pneumococcus Type II was found in the heart's blood and in the lung, and with *B. influenzae* in the right bronchus. Private P. had the opportunity to acquire his second infection from Private Sw.

Infection with pneumococcus Type II occurred in two patients apparently recovering from other types of infection, in one instance caused by pneumococcus Type II atypical, and in another by Type IV. In both instances pneumococcus Type II has apparently been acquired from a third patient occupying an adjacent bed.

Private Sm. was admitted with pneumonia to Ward 3 and placed in Bed 26, September 18. Pneumococcus Type II was found in the sputum. The patient died, September 27, with bronchopneumonia. There were scattered patches of lobular consolidation and diffuse

TABLE 10.—REPORT OF THREE CASES OF PNEUMONIA

| Name | Admitted | Bed Occupied | Pneumococcus in Sputum on Admission | Course of Disease | Pneumococcus Found at Necropsy |
|---|---|---|---|---|---|
| Private Sm. | Sept. 18 | 26 | Type II | Died, Sept. 27; bronchopneumonia | Type II |
| Private T. | Sept. 17 | 28 | Atypical II | Crisis, Sept. 19; temperature normal until Sept. 21, when it rose to 104.4; death, Sept. 29; lobar pneumonia | Type II |
| Private L. | Sept. 16 | 30 | Type IV | Some improvement occurred, Sept. 24 and 25, but temperature did not become normal; death, Sept. 30; bronchopneumonia | Type II |

consolidation of the greater part of the right upper lobe. Pneumococcus Type II was found in the heart's blood.

Private T. had been admitted to Ward 3, September 17, with a diagnosis of bronchopneumonia and signs of consolidation in the right lower lobe. Pneumococcus Type II atypical was found in the sputum. Crisis occurred, September 19, and the temperature was normal until 8 p. m., September 21, when there was a sudden rise to 104.4; death occurred, September 29. At necropsy there was firm hepatization with yellow color and characters of lobar pneumonia at posterior parts of both lower lobes; but throughout the remainder of the lungs there were small scattered patches of bronchopneumonic consolidation. Pneumococcus Type II was obtained from the heart's blood and lungs; *B. influenzae* was found in the consolidated part of the lung and in the right bronchus. At the time T. developed his second attack of pneumonia he occupied Bed 28, separated by one bed from that occupied by Sm., admitted with pneumonia caused by pneumococcus Type II.

Private L. was admitted, September 17, with lobar pneumonia and signs of consolidation in the left lower lobe. Pneumococcus Type IV was isolated from the sputum. There was some improvement, September 24 and 25, but the temperature never returned to normal and his condition was worse, September 26, when he developed signs of pericarditis. He died, September 30. The left upper lobe was consolidated, rather flabby and had a homogeneous, fleshy appearance. In other parts of the lung there were small scattered patches of bronchopneumonic consolidation and diffuse purulent bronchitis. Pneumococcus Type II with *B. influenzae* was isolated from the right lung, alone from the left lung, and with *B. inflenzae* and *Streptococcus viridans* from the right bronchus. L., from whose sputum on admission pneumococcus Type IV was obtained, occupied Bed 30, separated by one bed from

TABLE 11.—REPORT OF FIVE CASES OF PNEUMONIA

| Name | Bed Occupied | Pneumococcus in Sputum on Admission | Course of Disease | Pneumococcus Found at Necropsy |
|---|---|---|---|---|
| Pg. | 48 | Atypical II | Returned to duty, Oct. 8 | |
| J. | 49 | Atypical II | Died, October 4 | Atypical II |
| Lw. | 50 | I | Crisis; recurrence; died, October 8 | Atypical II |
| Sc. | 51 | Atypical II | Returned to duty, Oct. 25 | |
| C. | 53 | Atypical II | Died, September 25 | Atypical II |

T. and by three beds from Sm., both of whom suffered with Type II pneumonia.

The group of cases that has been described is especially significant because these are the only cases of Type II pneumonia save one recognized before October 1. Private P., in Bed 5, doubtless acquired his infection with pneumococcus Type II from Sw. in Bed 3; Private T., in Bed 28, and L. in Bed 30, from Sm. in Bed 26. It is doubtful if the infections of Sw. and Sm. have any relation to each other.

An instance of the transmission of pneumococcus Type II atypical occurred in Ward 8. Privates Sc. and L. were admitted to the ward, September 21, and assigned to Beds 51 and 50. Privates Pg., J. and C. were admitted to the ward, September 22, and given Beds 48, 49 and 53, respectively. The history of these patients is given briefly in Table 11.

Private Lw., who became ill one day before his admission, suffered with pneumonia caused by pneumococcus Type I, demonstrated by examination of the sputum on the day following admission. *B. influenzae* was found. He was in bed adjacent to J. with Type II atypical, who remained beside him until October 4, and one bed distant from Pg., with Type II atypical, who remained in Bed 48 until October 4, when he was transferred to another part of the ward. On the other side of Lw. was Sc., with Type II atypical, who remained in Bed 51 until October 9, when he was moved to another part of the ward. C., with Type II atypical in Bed 53 died, September 25. Lw. had frank lobar pneumonia with consolidation of the right lower

lobe, and crisis occurred, Sept 29, that is, on the ninth day of illness. The temperature remained normal until October 2, when there was sudden elevation of temperature to 104.2. Death occurred, October 8. Necropsy disclosed lobar pneumonia with gray hepatization of the right upper lobe. The heart's blood and the right lung contained pneumococcus Type II atypical in pure culture. Lw. doubtless acquired his second infection from the group of patients with the same micro-organism surrounding him.

There have been two instances in which, after one type of organism, namely, pneumococcus Type IV, has been found in the sputum by inoculation of white mice and subsequent identification of the pneumococcus, a different type has been demonstrated in the blood or lung at necropsy. Private G. was admitted to Ward 2, September 27, and pneumococcus Type IV and *B. influenzae* were found in his sputum. He died, October 2. There was acute lobar pneumonia with suppuration of the interstitial tissue of the lung and empyema. The heart's blood, lung and bronchus contained pneumococcus Type II; *B. influenzae* was found in the bronchus. Private Sp. was admitted to Ward 2, September 25. Pneumococcus Type IV was obtained from the sputum. He died, October 3; there was acute bronchopneumonia with multiple clustered foci of suppuration, and pneumococcus Type III and *Staphylococcus aureus* were found in the lung. Even should we assume that pneumococcus Type III in this instance descended into the lungs from the patient's mouth, the case indicates that reinfection of a pneumonic lung with pneumococci is possible.

The foregoing data show that pneumonia of one type does not establish any trustworthy immunity from other types of pneumococci. Patients with one type of pneumococci, notably in the examples cited of Type II, may infect with fatal result patients suffering with or recovering from other types of pneumonic infection. In the absence of streptococcus pneumonia it is essential to maintain in a pneumonia ward precautions that will prevent transmission of infection from one patient to another.

## SUMMARY

During the epidemic of influenza that has been studied, one fourth of those in the camp suffered with the disease; 12.1 per cent. of those attacked with influenza developed pneumonia, and 3.8 per cent. died.

Influenza tended to select newly drafted men, and was twice as common in men who had been in the camp less than one month as in those of longer residence. The incidence of pneumonia among newly drafted men was even higher; 62 per cent. of the cases of influenza were in men in camp less than one month; 67.5 per cent. of cases of pneumonia were in men in camp less than a month.

*B. influenzae* can be demonstrated often in immense number in the nose, throat, or sputum of every patient with influenza, and with few, if any, exceptions in the bronchi of those who have had the purulent bronchitis that follows influenza. The same organism can be found in the throats of some healthy individuals.

Pneumonia follows influenza because the disease renders the air passages susceptible to the invasion of a variety of micro-organisms, among which those commonly found are pneumococci, hemolytic streptococci, and staphylococci.

The profound injury to the air passages produced by influenza is shown by the consequent purulent bronchitis and bronchiolitis preventing collapse of the lung after removal at necropsy, by peribronchial hemorrhage, by dilatation of small bronchi, and ultimately by the formation of multiple bronchiectatic cavities.

Both lobar pneumonia and bronchopneumonia follow influenza, but the disease is somewhat less frequently lobar pneumonia than bronchopneumonia.

Lobar pneumonia following influenza at Camp Pike has been caused in most instances by pneumococci that occur in the mouths of healthy men, namely, by Type IV, 53.6 per cent.; Type III, 7.3 per cent, or Type II atypical, 21.7 per cent., whereas it is seldom caused by Type I, 13.1 per cent., or Type II, 4.3 per cent. Bronchopneumonia has shown similar preponderance of Type IV, 69.8 per cent. It seems probable that Types I and II are much less abundantly distributed among the troops of this camp than in those civil communities where most previous observations have been made.

Among the necropsies that have been performed here, typical lobar pneumonia occurred in about one half of the cases, bronchopneumonia alone in somewhat less than a fourth, and suppurative pneumonia usually superimposed on bronchopneumonia in slightly more than a fourth of the cases.

Three types of suppurative pneumonia occur: (*a*) Localized abscess formation within a patch of pneumonic consolidation, usually in immediate contact with the pleura and accompanied by empyema. Hemolytic streptococci are found at necropsy in the lung, in the bronchi, in the inflamed pleural cavity, and in the heart's blood. (*b*) Suppuration of the interstitial tissue of the lung superimposed on bronchopneumonia or occasionally on lobar pneumonia. The suppurative process extends up to the pleural surface, and there is empyema. Hemolytic streptococci are found in the situations named above (under *a*). (*c*) Multiple foci of suppuration clustered about a medium sized bronchus. Empyema has not been found. *Staphylococcus aureus* has been present in the lesion.

The sequence of events that occurs in many cases of influenza is as follows: *B. influenzae* descends into the bronchi; pneumococci (in this camp usually Type IV) invade the inflamed bronchi, enter the lung, and produce either lobar pneumonia or bronchopneumonia. Hemolytic streptococci may descend and infect the pneumonic lung. It is not improbable that hemolytic streptococci may invade the bronchi previously infected with *B. influenzae* and cause bronchopneumonia in the absence of pneumococci.

When hemolytic streptococci invade the lung either with or without preceding pneumococcus infection, there may be no suppuration of the lung. It is probable that death has occurred before there is opportunity for the formation of abscesses. *Streptococcus hemolyticus* may pass through a pneumonic lung and appear in the heart's blood although there has been no suppuration. It is not improbable that it may pass through the lung and produce empyema, the lung remaining free from actual suppuration. Lobar pneumonia appears to resist suppuration more effectively than bronchopneumonia; but fatal streptococcus infection is common with both.

Infection with hemolytic streptococci may spread as an epidemic through the pneumonia wards of a hospital. A single patient with streptococcus pneumonia is a source of grave danger to every patient in

the same ward. Superimposed infection with hemolytic streptococci increases the mortality of pneumonia so that it may reach from 50 to 100 per cent. of all patients with pneumonia.

Streptococcus pneumonia is introduced into a ward by the admission of a patient with the disease, or doubtless by a patient or attendant harboring hemolytic streptococci in the throat. Transmission of infection is favored by overcrowding, by failure to recognize the disease, by imperfect separation of patients by cubicles and other means, and by imperfect aseptic technic of medical officers, nurses and attendants.

Patients suffering with or recovering from pneumonia caused by one type of pneumococcus may be reinfected with another type of pneumococcus, and fatal pneumonia may result. General conditions that facilitate the transmission of streptococci outlined above favor the occurrence of reinfection with pneumococci.

The history of influenza and pneumonia at Camp Funston[1] indicates that epidemics of influenza and consequent pneumonia will follow the present epidemics of influenza when new drafts from isolated rural districts are brought into camps that have been attacked by the disease. There seems little reason to doubt that the incidence of pneumonia and the death rate of that which occurs might be greatly diminished by preventing all overcrowding of new recruits in barracks and by providing hospital facilities in considerable excess of the routine demand.

Hospital epidemics of streptococcus pneumonia will be prevented when medical officers have that dread of the disease—comparable to our dread of puerperal fever—which is inevitable when its characters are accurately understood. To promote a more widespread recognition of its nature, the use of a readily understood designation, such as streptococcus pneumonia, should be encouraged.

Streptococcus pneumonia is a preventable disease: (*a*) The technic of a pneumonia ward must be comparable to that of the best maternity hospitals, with added precautions to prevent patients from disseminating by coughing or other means ejected material containing streptococci, pneumococci or other microorganisms. (*b*) The throats of all patients with pneumonia should be swabbed before they are admitted to a ward set aside for the treatment of pneumonia in order to determine if they harbor hemolytic streptococci (demonstration of hemolytic streptococcus in the throat does not prove that the lung is invaded). (*c*) Patients with pneumonia harboring hemolytic streptococci should be kept in a separate ward into which none free from these micro-organisms are admitted. (*d*) When streptococcus pneumonia makes its appearance in a pneumonia ward, the ward should be closed to further admissions. It would doubtless be closed if diphtheria or scarlet fever had appeared and the danger from streptococcus pneumonia is greater. (*e*) Necropsies should be performed on every patient dying with pneumonia, and appropriate bacteriologic cultures should be made from the heart's blood and from the lungs as a means of determining the presence or absence of streptococcus pneumonia and to serve as an index of the efficiency of the precautions in force.

1. Opie, E. L.; Freeman, A. W.; Blake, F. G.; Small, J. C., and Rivers, T. M.: Pneumonia at Camp Funston, J. A. M. A. 72, 108 (Jan. 11) 1919.

## FEIGNED AMNESIA AS A DEFENSE REACTION *

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The examination of soldiers under arrest at the office of the provost marshal of Paris has revealed a number of individuals feigning loss of memory for the purpose of escaping punishment. This form of malingering was employed as a last resort when the culprits were without other excuse. The charge under which they were held was in every instance that of being absent from their unit without permission, and in no case was amnesia alleged to escape duty at the front.

It was interesting to note that all of these men were native Americans. None presented any evidence of mental deficiency, the majority being somewhat above the average of intelligence. One was a captain, two were first lieutenants, and the others were privates. Such civil occupations were represented as machinist, newspaper reporter, court stenographer, telegrapher and student.

The condition observed was characterized by an alleged absolute blank in the continuity of memory, corresponding to the period of time during which the individual thought it necessary to be excused from his actions. This period varied according to the astuteness of the soldier. Some deemed it wise to remember nothing of their past life, others limited it to incidents occurring during the past few years, while the majority claimed an amnesia corresponding to the period of their misdemeanor.

A typical statement would be somewhat like this: "The military police picked me up in the street because I had no papers. I do not know how I got to Paris, how long I have been here, or what I have done. The first thing that I remember was this morning."

### REPORT OF CASES

The subjoined reports are abstracted from the records:

CASE 1.—A private stated that he had arrived in Paris two nights before, he did not know how. He went to a military policeman and gave himself up. He did not know what his organization was or when he enlisted, but he was not drafted. His home was in California, he did not know where. He was not married. He came to France in cold weather, he did not know when. He landed in France, he did not know at what port. He did not know the name of the boat he crossed on; it had one smokestack. He thought he had been a teamster in France. He did not know what he did in civil life. He had been at the front.

The patient denied memory for recent and past events. His attention was good. There was no disorientation nor confusion. He answered questions promptly. He was able to answer problems involving multiplication and division promptly and accurately.

Physical examination was negative.

CASE 2.—A private was not sure of his name. He found an envelop in his pocket and he imagined it was addressed to him. This letter was from California. He said that he thought California was in the United States, but he could not say where the United States was. He did not know

* From American Red Cross Military Hospital No. 1.

where his home was or anything about his people. He supposed he had parents because everybody must have them. He did not think that he was married. He felt all right. He did not know his age, length of service in the Army, or length of service in France. He said that up to the time he found himself in the subway in Paris, Oct. 4, 1918, everything was a blank. This recovery of "consciousness," he stated, was due to a fall in the subway. He remembered all events since then perfectly. After he fell in the subway he went to his hotel and the next day reported to the provost marshal.

The patient was well oriented, his attention was excellent, he was well informed about Paris, and he appeared very intelligent. He seemed to realize that his story was very weak.

CASE 3.—A captain was charged with having been absent without leave for six weeks; with having been drunk and disorderly; of being in debt to a hotel for 1,500 francs; of brutalizing a woman who was registered at a hotel as his wife; of resisting arrest, and of attempting to break arrest. His identity card said that he was a first lieutenant, but he wore a captain's insignia and probably was a captain.

The patient had no memory of leaving his organization, and did not remember anything that had happened since. The patient stated that he did not know what month it was or why he was under arrest. He answered all questions readily that could not be used against him, but did not remember anything that he did not wish to remember. His attention was excellent, his train of thought well connected, and his intelligence keen.

COMMENT

It was not difficult in the majority of instances to expose the malingering by noting the inconsistency existing in the patient's statements. One man stated that he did not know the name of the boat on which he crossed the ocean, but later he said the boat had been torpedoed recently. When asked how he knew this he said he had read it in the papers. Another individual said that for the past few weeks he had been unable to recall any facts connected with his past life, including the name and address of his relatives. This man when questioned as to when he had last written home replied that he had a nurse write his sister while he was in a hospital. This was written at a time during which he had just claimed that he could not remember the address of his relatives.

The Café de la Paix seemed to hold a peculiar attraction for many of the patients brought up for examination. To such an extent was this true that it made a bright spot in a long day of routine examinations to have a soldier solemnly affirm that the first thing that he remembered for weeks was the military police grasping him by the shoulder in the Café de la Paix. The explanation of this is simple. This popular resort, dear to the heart of the American soldier in France, is situated at the intersection of the grand boulevards of Paris and is therefore the most central point in the city. Around this place the military police drew their net in the search for men absent without leave, and consequently here many of the men examined were arrested.

The mechanism of this reaction is easily understood, provided one has some knowledge of the psychology of the American soldier. It is so easily explained that even the psychanalyst would find it difficult to attribute the condition to repressed sexual complexes. A soldier, tiring of his routine life, leaves his organization without permission, in search of a few days' recreation. Many of them do this without being detected; but some are not so fortunate, and find themselves under arrest and called on to explain their actions. They know that they have no excuse; and having recently read about men losing their memory from "shell shock," they quickly seize on that as a means of escape, feeling that the less they say in their present predicament the better it will be.

The soldier realizes that when he returns home his family may require from him an explanation for his arrest while in the army, and what better excuse can he have than that mysterious and strange malady of shell shock, so well known to his people from the description in the popular literature? This explanation will raise him from the depths of disgrace to a hero's pedestal.

Usually there was a history of only one attack of amnesia; but one man, who was not an epileptic, gave a history of four such gaps in his memory, each developing at a most convenient time and disappearing after he was extricated from his difficulty.

Feigned amnesia is important not so much of itself but because of the possibility of its being confused by the uninitiated with certain forms of true amnesia, such as those seen in hysteria and certain confusional states.

We have seen true amnesia occurring in soldiers in hysteria, psychasthenia, mental confusion resulting from exhaustion, toxic states as the result of alcoholism and other drugs, epilepsy, various other psychoses, following cerebral concussion, and organic brain injuries.

The chief conditions that must be differentiated from feigned amnesia are hysteria and simple confusion from exhaustion. We have not seen hysterical amnesia without other manifestations of hysteria. The men feigning amnesia were alert and keen, and their attention was excellent, in marked contrast to the mental state of the hysteric. When the confusion following exhaustion is marked, there is no question of the diagnosis; but frequently the confusion is slight, and these cases are often difficult to differentiate from feigned amnesia. A careful study of the patient's story of exhaustion, together with his irritability, slight disorientation, and other symptoms of mental and physical exhaustion, form a basis for the differentiation.

A GENUINE CASE

The subjoined report is abstracted from the record of examination of a first lieutenant who was found to be suffering from simple confusion following exhaustion. It is quoted to show the difference between this condition and feigned amnesia:

*History.*—The patient left the front for Beauvais on twenty-four hours' leave after having been on active service, continuously under shell fire, for two months. He remembered going into a wine shop as soon as he reached Beauvais, and then remembered getting into a large automobile with other officers. He next turned up at A. R. C. M. H. No. 1, having been brought in with some wounded soldiers. He was sent from this hospital to U. S. Camp Hospital No. 4, where he remained for a few days; then he went with some other officers to the Elysée Palace to get his pay check. In some way he became separated from the other officers and disappeared for about a week, to be returned later to U. S. Army Camp Hospital No. 4. In the interval he had been wandering about the front trying to find his old command and finally had been sent to the hospital by a French officer, accompanied by a French corporal. He was then investigated by the provost marshal in response to a request from his commanding officer, who reported that he was absent without permission.

*Examination.*—There was amnesia of events between his arrival in Beauvais until he found himself in U. S. Army

Camp Hospital No. 4. Memory for events during this time was vague, being similar to that of a dream state. He was irritable and easily startled by sudden and unexpected noise. He was slightly depressed and inclined to be lacrimose. He had a slightly furtive attitude. His judgment was not good. His train of thought was not well connected. There was no paranoid trend, no hallucinations nor delusions. He did not know who his physician was at the hospital. There were tremor of the fingers and tongue, slight photophobia, and conjuctival injection. Other physical findings were negative.

*Extract from Conversation.*—"Damned if I know what I did in Paris. Those fellows (provost marshal) know, I suppose."

"How did you get your pay check?" "By God, that is why I came to Paris; you said something there."

"My ideas are hazy. The last two or three weeks I was up there I was not all right, I would raise hell with a man for nothing."

CONCLUSIONS

1. Feigned amnesia has assumed a place of importance in psychiatry because of the tendency of many examiners to classify it as amnesia due to hysteria.

2. The condition is a defense reaction to escape punishment. It is not unfamiliar to civil practitioners engaged in medicolegal work.

3. Amnesia, when alleged in industrial circles, may be of similar feigned character, for the purpose of gain. It is encountered in accident litigation, being in this case due to the expectation of compensation.

4. The dissemination of misinformation about "war neuroses" under the title of "shell shock" is to be regretted. The popular idea regarding this condition is erroneous, owing to the premature and inaccurate descriptions published. This has in turn been responsible for a larger incidence of the disease in the army than is justified, and has also enabled men to seize on it as an excuse for misdemeanors.

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## A NEW NEMATODE INFECTION OF MAN

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In the course of the hookworm survey of increments of troops arriving at Camp Travis, Texas, and of various military units of the Southern Department (Texas, Oklahoma, New Mexico and Arizona) by the Laboratory Car *Metchnikoff*, a nematode ovum, apparently undescribed, has been found in 429 cases among approximately 140,000 soldiers examined. This ovum is the largest ovum of intestinal worms encountered in human stools. Its dimensions average 95 by 40.2 microns, with a ratio of length to diameter of 2.4: 1. It is extraordinarily variable in size and proportions, its length ranging from 68 to 133 microns and its diameter from 33 to 43. The ova of *Necator americanus* in our material measured 69 (from 63 to 72) by 38 (from 35 to 43) microns. These are averages of twenty measurements in both species.

This new ovum is characterized by two marked diagnostic features that clearly distinguish it from other nematode ova of man: The first is a broad concavity on one face usually concealed by the position of the ovum when floating on brine, so that it appears only as a flattening on that face. The other feature is the presence of two highly refractive hyaline, bluish green globules flattened asymmetrically at the two poles of the embryo. They are sometimes combined in one large lateral or polar globule, or are broken up into smaller moieties. They are dispersed as development proceeds. The larva partakes of the color of the globules. The egg is a broadly rounded asymmetrical ellipsoid, with clearly defined double contoured eggshell similar to that of the hookworm. In some instances the faintest tinge of brown can be detected in optical sections of the shell. There is sometimes a small irregularity in the contour toward one end on the concave surface suggestive of an operculum.

The eggs at oviposition in fresh stools are in the late morula to coiled larval stages, the latter often in elongated, slender ova. Attempts to hatch the egg in water, boneblack, at air temperatures, in the incubator at blood heat and below, and in human gastric and duodenal fluids have all failed. Cobb[1] was unable to hatch the ova of *Oxyuris vermicularis* in artificial digestive fluids, although he did succeed in securing developing larvae from ova passed through the human digestive tract in a suction capsule. Spasmodic movements in the coiled larvae in the shell have been noted.

The infections are most of them light, only a single ovum being found in many cases. The maximum number detected on one slide by the Kofoid-Barber brine-loop method was twenty-four.

The affinities of the ovum are suggested by its size, proportions and contour. On a partial survey of the literature of nematodes, human and of other mammals, no reference has been found to such hyaline globules. Minute globules of similar physical characteristics appear in some ova of *Oxyuris vermicularis*. The flattening on one face is a family characteristic of the ova of *Oxyuridae*. The size and proportions of this ovum fit about midway into those of the species of *Oxyuris* found in rodents, such as rabbits, rats and mice. We therefore tentatively assign this species to *Oxyuris* as *Oxyuris incognita* sp. nov., pending the discovery of the adult stage. There is a possibility of its being a *Trichostrongylus*, but the ova of the known species of that genus are generally larger and more slender, and have no flattening (except *Trichostrongylus orientalis* Jimbo from man in Japan) and are not known to have globules. This is not the egg of *Trichostrongylus orientalis* in either dimensions or proportions, and that species has no globules (in photomicrographs and descriptions).

No ova of like structure have been found by us on examination of feces of horses, mules, cattle, hogs, goats, or culture rats and mice from Texas.

The infected soldiers were examined for the most part within two or three weeks after admission from civil life; hence the infection may be attributed to the region of their previous residence. The distribution has been determined on the basis of the place of enlistment of the infected soldiers. In 30,348 examinations made between July 28 and Aug. 21, 1918, there were 361 cases of infection among troops in Camp Travis. These came from forty-eight states of the Union with infections in twenty-two states. The number of men examined, the number of infections,

1. Cobb: Proc. Linn. Soc., N. S. Wales, **5**, 1890.

and the percentage of infection in each state from which infected men came are given in the accompanying table.

The regions from which no infections were detected are the New England states, the Southeastern states, and a group in the Central Northwest.

In Texas the sandy prairies, the eastern timber belt, and especially the eastern and western cross timber countries, narrow belts of sandy soil running south from the Red River through the most densely populated region of the state, are the most heavily infected regions. The percentage of infection in men from counties in these belts ranges from 1 to 11. These are also regions of heavy hookworm infection. This suggests entrance by skin penetration.

Negroes, as in the case with hookworm infections, have a lighter infection (0.9 per cent) than white men (1.5 per cent). Men of foreign birth show infections, but there is no suggestion of importation. No occupational relationship to infection is evident. Men from country and city are both infected, though the greater part of the cases come from the country and smaller towns.

There is a very marked seasonal occurrence in the appearance of the ova. Examinations have been in

ORIGIN OF INFECTION

| State | No. of Men Examined | Infections | |
|---|---|---|---|
| | | Number | Per Cent. |
| Arkansas | 156 | 4 | 2.6 |
| California | 85 | 2 | 2.3 |
| Colorado | 957 | 36 | 4.0 |
| Illinois | 654 | 7 | 1.1 |
| Iowa | 218 | 5 | 2.3 |
| Kansas | 125 | 1 | 0.8 |
| Kentucky | 91 | 1 | 1.1 |
| Louisiana | 155 | 2 | 1.3 |
| Maryland | 24 | 1 | 4.2 |
| Michigan | 192 | 3 | 1.6 |
| Minnesota | 156 | 2 | 1.3 |
| Montana | 25 | 1 | 4.0 |
| New Mexico | 947 | 10 | 1.1 |
| New York | 394 | 2 | 0.5 |
| Ohio | 188 | 2 | 1.1 |
| Oklahoma | 2,621 | 63 | 2.4 |
| Pennsylvania | 299 | 2 | 0.7 |
| Texas | 21,023 | 213 | 1.0 |
| Utah | 13 | 1 | 7.7 |
| Virginia | 22 | 1 | 4.5 |
| Washington | 24 | 1 | 4.2 |
| Wisconsin | 84 | 1 | 1.2 |
| Totals | 29,053 | 361 | 1.2 |

progress from March to November inclusive, but 409 of the 429 infections were detected between July 28 and September 8, 301 of them in sixty-one of the ninety-two companies of the 165th Depot Brigade, and the remaining 108 in other organizations of Camp Travis. This period of maximum oviposition follows about two months after the maximum use of fresh salads, such as lettuce and radishes, in the usual course of country and town life. The interval is approximately that required for other nematodes, such as hookworm, for reaching sexual maturiy after entering the host. Oviposition is exceedingly irregular. Stools of infected men contain ova rarely. The possibilities of a much larger percentage of infection is suggested by this fact. No cause for cessation of detections of infections is apparent. It is possible that the parasites die or are cast off after maturity, but evidence is lacking. A few cases of infection have been detected throughout the remainder of the year except from December to February, which period has not as yet been covered.

The possibility of chance infections of food and water by ova have been carefully considered. Camp Travis is supplied with nonstored artesian water. Camp sanitation tends to preclude food infection from manure or from rodents. Ova of plant nematodes presumably have no antidigestive ferments. Similar ova to this have not been reported from food plants. The ova change appearance on cooking.

In the premises it seems probable, but not proved till the adult is found, that these ova come from an *Oxyuris* parasitic in but perhaps ill adapted to man, with marked seasonal limitation in oviposition. The variations in proportions and size of ova, and the irregularities of deposition suggest a small adult worm, and possibly a location in the appendix or ducts of the liver. *Oxyuris* is usually a parasite of the cecum in rodents. Appendixes should be examined for this hypothetic parasite. Immunity from vermifuges and enemas tends to confirm this supposition. There is a possibility that the worm is a small one, easily killed by treatment, and perhaps digested before its discharge.

## CLINICAL OBSERVATIONS AT CAMP TRAVIS BASE HOSPITAL

Observations were made in forty-seven cases in which unidentified nematode eggs had been found.

In Cases 1 to 6 there were positive findings of eggs in the stools after the patients came to the hospital and before treatment, the eggs disappearing entirely from the stools after one administration of 30 c.c. of a saturated solution of magnesium sulphate.

In Cases 7, 10 and 11, enemas of benzin were given in the strength of 15 minims to the liter. No eggs were found in the stools after the first enema. All were positive before that administration.

In Cases 8 and 9, the benzin enemas were given on three successive days, after which ova were still present in the stools. The patients were then given castor oil, followed by 30 grains of thymol, which in turn was followed by benzin enemas. Ova were still present in the stools after these treatments. The patients were then given 30 c.c. of a saturated solution of Epsom salt, after which the ova were not found.

In Cases 12 to 18, oil of chenopodium was given by the method in use in the government hospitals, that is, magnesium sulphate, 30 c.c., at 4 p. m., followed by a cereal supper, a glass of milk at 6 a. m. the following day, and 0.4 c.c. of oil of chenopodium at 7, 8 and 9 a. m., with magnesium sulphate at 11 a. m. No ova were found in the stools after the treatment.

In Cases 27 to 32, ova were present in the stools on admission to the hospital, but these patients were not treated for four days. They were given a full tray diet, and daily examinations made of the stools. The eggs disappeared in from one to three days. They were then given a vermifuge; three of them thymol, 1 dram in broken doses (three) in emulsion and three oil of chenopodium, 40 minims, in broken doses (three) in emulsion.

In Cases 33 to 38, the patients were put on a vegetable diet, with the prompt disappearance of the ova, and then given a cathartic.

In Cases 39 to 43, the patients were placed on a meat diet with the same result.

In Cases 44, 45 and 46, the patients were given 5 minims of turpentine after a cathartic, although no ova were found in the stool after admission to the hospital.

In Case 47 numerous eggs in the stools were reported before coming to the hospital, but none were found in the stool since. This patient was given first a plain enema, and on the following day a soapy water enema, and on the next day magnesium sulphate, 30 c.c. of a saturatel solution, after which for two days he was given naphthalene in 7 grain doses, four times daily for two days.

In none of the foregoing cases were any parasites recovered, although repeated examinations of the stools were made in every case both during and after treatment, by washing through a 50 or 80 mesh sieve in many instances.

The blood counts in every case were all well within normal limits except that in Case 9 there was evidence of a secondary anemia; this patient, however, had been in indoor work and gave evidence of a former tuberculous process. In Case 47 the eosinophil count was 5, a little above normal. However, in thirty-two of the forty-seven cases the larger mononuclears showed a slight increase above normal.

Stomach washings in four cases showed no evidence of either ova or parasites.

In none of the cases was there any evidence in the history, symptoms or physical examination pointing to an infection by intestinal parasites.

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## BERIBERI AT U. S. ARMY BASE HOSPITAL, SAN JUAN, PORTO RICO

### LABORATORY INVESTIGATIONS AND CLINICAL MANIFESTATIONS OF SIXTY CASES

JOHN D. RIDDELL, M.D. (SALINA, KAN.)
Major, M. C., U. S. Army; Commanding Officer

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Major, M. C., U. S. Army, Chief of Medical Service

AND

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Captain, M. C., U. S. Army; Chief of Laboratory Service

SAN JUAN, PORTO RICO

When cases of polyneuritis began to come into the base hospital at San Juan, from Camp Las Casas, Porto Rico, it was a serious question to decide whether they were those due to dietary deficiency or the result of specific infections, as we had just passed through a serious epidemic of influenza; but after a careful study of the clinical manifestations and complete laboratory reports, it was quite evident to all those who followed the investigations that we were dealing with beriberi, as seen in the Orient. This is the first time, as far as we have been able to determine, that beriberi has been diagnosed as such, in the island of Porto Rico.

The sanitary inspector of the camp was asked to secure and furnish us with a complete detailed report of the diet of the 373d Regiment, from which regiment we were getting the majority of our cases.

The investigation and report of the food used by Company A, Company B, Company C and Headquarters Company of the 373d Regiment, revealed that:

A. Polished rice was a staple article of food for the foregoing companies during the months of September, October and November, 1918.

B. It was served on an average of two meals a day during that period.

C. While the ration was well balanced, there was a deficiency in fresh vegetables due to local conditions.

D. The only vegetables served in large quantities were potatoes and the different varieties of beans.

E. A large amount of canned meats and canned vegetables were used, especially by Company B of the 373d Regiment, which company furnished a majority of the beriberi cases.

On questioning the patients suffering from beriberi, it was learned that those affected were rice eaters and consumed their full rice component of the daily ration, 3.3 pounds a week. Most of them did not eat their meat ration, and those who did eat meat ate sparingly of it.

The following extract from the Section of Tropical Medicine and Hygiene on the Seventeenth International Medical Congress is quoted:

> The section is of the opinion that beriberi among natives who live principally on rice is brought about by the continued and too exclusive use of rice, submitted to a too complete milling, which removes the cortical and subcortical layers of the grain.

### LABORATORY INVESTIGATIONS

1. *Blood.*—The average percentage of hemoglobin in forty-seven patients suffering from beriberi or polyneuritis was 72.64.

The differential count in twelve cases showed an average in polymorphonuclears of 45.83 per cent. and in small mononuclears of 38.75 per cent.

2. *Urine.*—The examination of urine in thirty-nine patients disclosed no albumin. Of this examination 38.46 per cent. disclosed hyaline casts and 15.38 per cent. hyaline and granular casts.

3. *Feces.*—Of these examinations, 90.47 per cent. revealed uncinaria ova, in a few instances associated with other parasites.

4. *Swabs.*—In swabs from the throats and noses of thirteen patients inoculated in proper mediums, nothing important was detected.

5. *Spinal fluid.*—In Case 12 (Reg. No. 5861) the spinal fluid was clear and showed 3 white cells, 14 red cells and 3 cells undetermined to the cubic centimeter.

6. *Necropsy.*—The examination of L. M. (Reg. No. 5937) resulted in these findings:

> The body was well developed. Rigor mortis was fairly well marked. There was edema of the lower extremities, especially of the ankles. The face was cyanotic, with a large amount of foamy secretion coming from the mouth and nose. Hypostatic congestion was well defined. When the thorax was opened, fluid blood of dark color escaped through the injured vessels with ease. Considerable edema was noticed on both lungs. On section the lungs showed signs of edema. The pleural cavities of both sides contained a moderate amount of fluid. The pericardium contained about 2 ounces of fluid. The heart was large, especially the right heart, where there was considerable thinning of the walls, with very marked dilatation. The thoracic vessels were normal. The diaphragm was well developed. The liver was somewhat enlarged but of normal appearance and consistency. Section did not show any internal macroscopic change. The pancreas was normal. The stomach and intestines were normal. No parasites were found in the ileum. The spleen was somewhat diminished in size, but did not show any macroscopic change. The omentum was rather reduced in size. The kidneys showed some degree of congestion. No macroscopic change could be found in the brain, meninges and upper portion of cord. The cerebrospinal fluid was clear. The penis had a long prepuce. The scrotum was edematous.

7. *Cultures.*—Cultures made from the heart and lungs at postmortem were negative.

8. *Microscopic examination.*—Preliminary microscopic examination of the spleen, heart, kidneys and liver sustained the macroscopic appearance.

### CLINICAL MANIFESTATIONS AS FOUND ON EXAMINATION OF SIXTY CASES OF POLYNEURITIS

Symptoms began in almost every case with a numbness over the legs, usually over the shins first and gradually spreading over the calves and upward to the knees, over the thighs and then to the abdomen between the umbilicus and symphysis pubis. In some cases it also affected the upper extremities, usually the finger tips, and extended upward, to the hands, forearms and in a few cases, to the arms.

TABLE 1.—FINDINGS IN POLYNEURITIS CASES.

| | | | |
|---|---|---|---|
| 1. Legs, only | 22 | Patellar reflex absent | 26 |
| 2. Legs and thighs | 6 | Patellar reflex diminished | 26 |
| 3. Legs, thighs and abdominal wall | 6 | Achilles reflex absent | 18 |
| 4. Legs, thighs, abdominal wall and hands | 3 | Romberg positive | 46 |
| 5. Legs, thighs, abdominal wall, hands and forearms | 9 | Incoordination shown in some method | 48 |
| 6. Legs and abdomen | 3 | Ataxic gait | 11 |
| 7. Legs, hand and forearms | 6 | Simulating ataxie | 11 |
| 8. Legs, thighs, hands and forearms | 3 | Not ataxie but abnormal | 20 |
| 9. Legs, abdominal wall, hands and forearms | 1 | Atrophy: | |
| One complicated with cholecystitis and influenza when admitted. | | Calf muscles | 4 |
| Two complicated with malaria. | | Thighs | 2 |
| Prickling formication | 9 | Anesthesia varying in degree: | |
| Numbness | 47 | Shins | 33 |
| Edema, ankles and shins | 34 | Legs, other than shins | 36 |
| Edema, general | 2 | Thighs | 5 |
| Tenderness and pain: | | Abdominal wall | 6 |
| Calves | 60 | Hands | 3 |
| Peroneal | 40 | Forearms | 2 |
| Adductors of thighs | 12 | Feet | 9 |
| Quadriceps of thighs: | | Gastric symptoms | 7 |
| Lower half | 14 | Anorexia | 4 |
| Entire | 15 | Fever, slight and at onset only | 11 |
| Hamstrings: | | Cardiac symptoms | 12 |
| Lower half | 8 | Dyspnea, slight | 6 |
| Entire | 14 | Hyperesthesia: | |
| Abdominal wall | 13 | Legs | 5 |
| Dorsum of feet | 5 | Thighs | 2 |
| Thenar eminences | 6 | Arms | 2 |
| Hands | 18 | Had influenza: | |
| Forearms | 12 | Last two months | 17 |
| Arms | 5 | Last six months (previous to the last two months) | 5 |
| | | Doubtful | 4 |
| | | Not influenza | 36 |

Pain was noticed in every case in the calf muscles, and in nearly every case was first noticed in this area. The peroneal group was next in order of frequency and time to be affected. Of the thigh muscles, the quadriceps were first and also more severely affected, with the hamstring group next and adductor group last. Intense pain was caused by pressure on these affected muscle groups. There did not seem to be any greater degree of tenderness over the course of the large nerve trunks.

Only about one third of the patients had any pain in the hands, and the tenderness on pressure was not marked, the thenar eminences being most tender. The flexor muscles in the forearms were the most tender in that area.

Edema was noticed to a small degree in thirty-four cases. This was localized in the ankles and over the tibias, but disappeared after a few days in bed. Two patients had general edema, though not very marked, on admission, but this also disappeared after a few days in bed. The urine in these cases was negative to albumin.

Areas of partial anesthesia, in some cases being only a blunted sensibility, were found in over half of the cases. The part most affected was the shins, other parts of the leg together being but slightly more affected than the shins alone. The feet, abdomen and thighs were affected in the order named, with a few areas in hands and forearms. Hyperesthesia was found in nine cases.

Absence of fever was very noticeable; only eleven patients had some slight fever at the onset, which lasted but a few days. Gastric disturbance was still less frequent, only seven cases of nausea, or nausea and vomiting, being recorded, and this at the onset for but a few days. Complete anorexia was reported as beginning symptoms in four cases, and this was improved either when the patient had been admitted or after a few days in the hospital.

Some form of cardiac affection was found in only twelve cases, consisting in tachycardia, enlarged heart, or a murmur. Whether these were complications of the disease or existed previous to the disease cannot now be told.

The patellar reflex was absent in twenty-six cases, diminished in twenty-six and the Romberg phenomenon was present in forty-six cases. Incoordination could be determined in these cases by other means.

Korsakoff's syndrome was absent in every case.

Thirty-three of the patients reported that they had not had influenza in the present epidemic. Seventeen did have, and six had that disease in the epidemic four months before.

Two patients were admitted with attacks of acute dyspnea. Both had general edema, with rapidly progressing edema of the lungs. The heart action was rapid and very feeble; and heart was enlarged downward and to the right and left. Their feet and hands were cold, and gradual increasing cyanosis was present from the time they entered the hospital. Acute distress was most marked, and nothing could give relief. The patients gasped for breath, were intensely restless, and at times were wild with agony. Death occurred in both cases before twenty-four hours in the hospital had elapsed.

All patients began to improve when placed on a high protein diet, and practically no medication was given. The surgical management of the cases consisted in relieving all tension on muscles showing even a slight trace of paralysis. Six patients when received showed a marked degree of equinovalgus. The affected muscles in these cases were put at rest by the application of a light plaster cast extending well out to the toes, holding the foot at right angles to the leg; the cast was removed as soon as the foot drop symptoms disappeared. All but one patient on a highly nitrogenous diet promptly regained normal function of muscles involved. Thirty-two patients still remain in the hospital under treatment.

TABLE 2.—PERIOD OF SYMPTOMS PREVIOUS TO ADMISSION TO HOSPITAL.

| *Days* | *Patients* | *Days* | *Patients* |
|---|---|---|---|
| 1 | 1 | 14 | 3 |
| 2 | 1 | 15 | 12 |
| 5 | 3 | 18 | 2 |
| 6 | 1 | 20 | 6 |
| 7 | 2 | 21 | 2 |
| 8 | 2 | 23 | 2 |
| 9 | 3 | 28 | 2 |
| 10 | 5 | 30 | 7 |
| 11 | 1 | 60 | 2 |
| 12 | 2 | | |

One, unknown, came to the hospital with influenza and developed pneumonia.

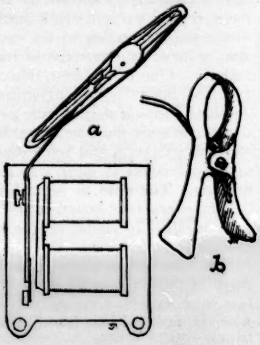
**Well Born.**—Children will never be well born until they are desired by the men and women who are potential parents.—Dawson.

## Clinical Notes, Suggestions, and New Instruments

### A SIMPLE SHAKER FOR HEMOCYTOMETER PIPETS

TRACY JACKSON PUTNAM, A.B., BOSTON

Having had occasion recently to make a large number of blood counts, I became impressed not only with the necessity of shaking the pipet thoroughly in order to obtain accurate results, but also with the time and exertion required to shake by hand. I accordingly devised an electric shaker.




Simple shaker for hemocytometer pipets: *a*, pipet, enclosed in rubber band, in shaker; *b*, detail of clip.

The gong and ball of the hammer were removed from an ordinary electric bell, and a small spring clip, such as is used for hanging up negatives, was soldered to the end of the striker arm. The jaws of the clip were bent so as to hold a pipet securely, and it was placed in line with the long axis of the bell, but at an angle of 45 degrees with it, by bending the striker. Such an apparatus may be screwed to the laboratory table and operated by two dry cells with a switch in circuit; or it may be fastened to the cover of a box measuring approximately 5 by 3 by 2 inches, containing two double-cell flashlight batteries, connected in series-multiple by a spring plate at each end. The bell frame should be firmly fastened, as any lost motion ruins the efficiency of the machine.

The filled pipet is kept from leaking by a rubber band, cut from a 3½ inch automobile inner tube, around the ends, which also serves to hold a bit of paper indicating the source of the specimen. It may be kept thus for hours or even days. The contact points and the length of arm of the shaker should be so regulated that the glass bead can be seen to spin in the ampulla. The pipet should be shaken for from three to five minutes, which can meanwhile be profitably spent in putting an extra polish on the counting cell and cover glass.

A trace of grease from a grease pencil, in the gutter of the slide, tends to keep the drop from overflowing.

108 Marlboro Street.

**Child Labor Bill and the States.**—The National Child Labor Committee calls attention to the fact that the war has left us a legacy of greatly increased employment of children in industry, in the state of Pennsylvania this amounting to 60 per cent. increase among children between 14 and 15 years of age. This probably represents the condition throughout the country. The Pomerene child labor measure which has passed the United States Senate would apply only to children in the manufacturing and mining industries, in which are found but 15 per cent. of working children from 10 to 15 years of age. This leaves much for the states to do to protect the remaining children, none of whom, according to the committee, should be allowed to engage in gainful occupations under the age of 16. To help out, children's scholarships and mothers' pensions to enable boys and girls of needy families to go to school are advocated. Mothers' pensions or compensation laws are in force in thirty-three states, Illinois being the first to enact such a law. These laws help to avoid the hardship resulting from child labor laws on families in which the wages of the children are needed for the family support on account of the death or desertion of the man wage earner, and they protect the children.

## Therapeutics

### MALARIA

There have always been malarial fevers, under the scourge of which even nations have deteriorated. In more recent times, industrial, engineering, financial and military failures have occurred on account of malarial fever. Especially in evidence was the failure of the French to dig the Panama Canal as the result of this infection. On the other hand, the power of prevention has never been shown so completely as it was on the isthmus under the sanitary administration of General Gorgas.

As general measures of prevention are matters of state and sanitary legislation, they need not be described here.

The most important single measure is the prevention of mosquito bites, even if the majority of such bites are not due to the anopheles mosquito. This means not only the eradication of local mosquito-breeding spots, but also the proper screening of houses, sleeping porches and tents.

It has long been considered that prophylactic doses of quinin would prevent the growth of the germ, if the patient received such an infection; therefore enormous quantities of quinin have been administered, in different parts of the world, especially to soldiers or others visiting malarial districts.

We should recognize that the constant ingestion of such a protoplasmic poison as quinin may not be to the advantage of the individual. It is an appetizer and a stimulant, but at the same time it may inhibit many cellular and glandular activities. No one can doubt that if a person has quinin circulating in his blood, and at that time receives a bite from an infected mosquito, the germs will not grow; but at present the evidence seems to be accumulating that it is better to prevent the bites of the mosquitoes than persistently to take prophylactic doses of quinin.

While the clinical diagnosis of typical malarial fever (chill, fever, headache, often vomiting, sweating and remission) is readily made, without the characteristic symptoms it may be difficult, and many times can be made only by finding the plasmodium in the blood. The peripheral blood may not show the plasmodia in latent malaria. It should also be remembered that malarial organisms may remain harbored in the blood or in some other part of the body for an indefinite period, and perhaps later reinfect the carrier or an anopheles mosquito, and thus pass the infection on to some one else.

In most parts of this country, so-called pernicious malarial fever is rare. Consequently, most infections of malaria are cured by the administration of quinin by the mouth. The adult germs are readily killed by this drug; but it is more difficult to kill the germs in spore. In serious or old infections, the administration of quinin does not seem to prevent the malarial germs from lying dormant in some part of the body, probably in the spleen. Such dormant germs cause recurrent infections.

There are two methods of administering quinin in acute infection. One method is to give the largest

dose five or six hours before the expected chill, at which time the germs are mature and therefore most readily killed by the drug. The other method is to give the quinin in smaller doses every two or three hours, night and day, for three days. Whichever method is used, there should be an intermission for the patient to eliminate the quinin and free himself of this poison—and quinin should be considered a poison of the milder type. When quinin is given continuously for three days, as just suggested, it should be stopped for about a week and then repeated. If the quinin is given in larger doses six hours before the expected chill, the amount should be 5, 10 or 15 grains. It is best administered in soluble capsule, and should never be given on an empty stomach, but with milk, malted milk, bouillon and crackers, or tea or coffee and toast, as some simple food should be in the stomach to prevent irritation from the quinin. No more quinin should then be given for twenty-four hours, and then about half the first dose is given on the intermediate day (the amount entirely depending on the severity of the infection and the age of the patient). Then again the larger dose should be given six hours before the time of the next expected chill, whether or not the previous chill occurred. The dose of quinin may then be gradually decreased daily until at the end of a week of freedom from chills a tonic dose of the drug, as 2 grains, combined with 1 grain of iron and 1/30 grain (0.002 gm.) of arsenic may be given, in capsule, three times a day. This may be given for one or two weeks and then gradually reduced.

If the more intensive treatment is given—administration every two hours—it would be better to use a more soluble form than the sulphate, such as the bisulphate or the hydrochlorid, and the dose should be 2 grains every two hours, or 3 grains if given every three hours. This may be given in solution or in a soluble capsule. It should always be taken with plenty of water. At the end of the three-day period when the quinin is stopped, it is well to give arsenic and iron in some form.

It seems to be always advisable to give a cathartic, if possible, before beginning intensive quinin treatment. The one most frequently given is calomel.

As malarial infection in temperate climates is not a dangerous infection, it is well to consider somewhat the comfort of the patient during treatment. In other words, administration of quinin during the fever period, with a throbbing head and nausea, is unnecessary. When the patient is first seen during the chill, the indication is to get him warm as quickly as possible. Hot drinks, such as hot lemonade or hot tea, should be given, and he should be surrounded with hot water bags. As soon as the fever starts, a more desirable antipyretic than quinin should be given; 0.2 gm. of acetanilid, or 0.75 gm. of acetphenetidin may be given to hasten the stage of perspiration and lower the temperature. As soon as the patient is freely perspiring and the headache has disappeared, the quinin treatment by small doses frequently given may be begun. Or, if the method of larger doses with a longer time between the doses is preferred, some drug that will prevent the unpleasant cinchonism should be coincidently administered. A drug well suited for this purpose is sodium bromid, and 3 grains of it for every grain of quinin sulphate will generally prevent cinchonism.

The value of arsenic in driving plasmodia from hiding, eliminating infection and preventing recurrences seems to be proved; hence its suggested addition to the quinin treatment.

### IDIOSYNCRASY TO QUININ

When there is known to be marked idiosyncrasy against quinin, as shown by serious cerebral excitement, serious ear and eye symptoms, and even swelling of the tongue, puffing of the face, and eruption on the skin, some substitute must be used in the treatment of malaria. One of the best substitutes is arsenic in the form of liquor potasii arsenitis (Fowler's solution). Another successful substitute is methylene blue. The dose of arsenic must be large, to the point of causing stomach irritation and some diarrhea. Arsenic would not be advisable if there was nephritis, or even albuminuria. The dose of methylene blue is from 0.1 to 0.2 gm. every four hours, or 0.3 gm. three times a day, after meals. It should be given in capsule and taken with plenty of water.

Fortunately, few persons show such serious idiosyncrasy against quinin as to need these substitutes. A few patients who are especially susceptible to the first dose of quinin tolerate it well after the first twenty-four hours.

### PERNICIOUS MALARIAL FEVER

This type of fever, often called congestive chill, means a serious infection, dangerous to life. Very large doses of quinin are necessary, and generally the quinin is best administered intramuscularly, or perhaps intravenously. The clinical course of the disease must be immediately stopped; a second, and certainly a third chill must be prevented.

### HEMOGLOBINURIC FEVER

The germ of infection of this blackwater fever has not been found, but is generally more or less closely associated with ordinary malarial plasmodia. It has been thought that the parasite of this disease destroys the parasites of ordinary malaria.

The advisability of giving quinin during this disease is still somewhat in doubt, although some physicians practicing on the isthmus believe that large doses of quinin should not be given during this fever. Quinin may perhaps never be the cause of hemoglobinuria; on the other hand, it has been reported to increase the destruction of blood corpuscles and the loss of blood during hemoglobinuric fever.[1]

1. A discussion of this subject, with many references, has been presented by W. O. Ott (J. A. M. A. **67**: 872 [Sept. 16] 1916).

**Industrial Morbidity Statistics.**—*Public Health Reports*, Aug. 30, 1918, contains a synopsis of a report of a Committee on Industrial Morbidity Statistics of the American Public Health Association, which is to be presented before that body at its meeting in Chicago, Oct. 14-17, 1918. A complete plan for collecting, tabulating and employing these statistics, together with outlines of proposed analytic tables, is presented. It is recommended that the United States Public Health Service be made the clearing house for the collection, analysis and publication of the statistics. The committee consists of Louis I. Dublin, chairman; Carl B. Auel, William A. Hathaway, Dr. George E. Tucker, and Dr. B. S. Warren, secretary.

# New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

## BIOLOGICALLY REACTIVE FOOD PROTEINS

These products represent the purified and concentrated proteins of the particular food from which they are obtained.

*Preparation.*—They are prepared from the protein bearing portions of the particular food by extracting fats and lipoids with suitable solvents. The dry residues are then extracted with such solvents as water, dilute alkaline or acid solvents, as may be indicated. The protein is obtained from this solution after neutralization if necessary, either by rapid evaporation of the solvent at low temperature or by concentrating the solution and precipitating the protein by a suitable agent such as alcohol, acetone, etc.

*Properties.*—In any case the protein is obtained in the form of a dry, finely divided powder which is white or nearly so and wholly or partly soluble in water.

*Actions and Uses.*—These protein products are used in cases where persons show a peculiar hypersensitiveness or idiosyncrasy toward certain articles of the dietary. Their use is twofold, namely, to establish just what particular food produces the untoward symptoms, and also by their proper application to immunize the patient against the ill effect of this food.

The test for sensitiveness is made by scarifying the skin in such a manner as just to penetrate the outer layer, taking care not to draw blood. The protein is then rubbed into the tissue at this spot either in the form of dry powder or as a solution in sterile water or physiological sodium chloride solution. If desired, a much more dilute solution (1 to 100 or less) of the protein may be injected *intradermally* in doses of one hundredth to two hundredths of a cubic centimeter. Controls with sterile sodium chloride solution should always be made regardless of the method of application employed.

The reaction will appear about the site of inoculation in the form of a distinct urticarial wheal within five minutes to half an hour, and may persist for several hours. The intensity of the reaction will depend somewhat upon the concentration of the protein solution. No systemic effect should be produced.

When the identity of the particular food protein causing the symptoms is thus established, it has been found that the patient may be desensitized by the administration of gradually increased amounts of food containing the offending protein or of the isolated food protein itself. If the isolated food proteins are used, they are best administered mixed with the ordinary foods. The dose at first should not exceed five to ten milligrams given several times a day whenever food is taken. The dose may be increased but should be governed by the appearance of systemic disturbances. The skin reaction is the best indication as to the effect being produced by the dosage given. The administration should be continued until no positive skin reaction is obtained by the same protein which is being administered.

The efficiency of the treatment can be judged by the patient's ability to ingest without ill effect large quantities of the food protein which previously had produced the untoward symptoms.

**COW'S MILK ALLERGENS-SQUIBB.**—A powder representing all the soluble proteins contained in cow's milk.

*Actions and Uses.*—See preceding general article on Biologically Reactive Food Proteins.

*Dosage.*—See preceding general article on Biologically Reactive Food Proteins.

Manufactured by E. R. Squibb & Sons, New York. No U. S. patent or trademark.

Cow's Milk Allergens-Squibb is prepared: Fresh cow's milk is centrifuged to remove fat and dialyzed to remove lactose and salts. From this solution, the milk proteins are precipitated by saturation of the solution with ammonium sulphate and the salts then removed by filtration and dialysis. The remaining protein solution may now be reduced to dryness by rapid desiccation at a low temperature in vacuo or the proteins may be precipitated by addition of alcohol or acetone and the precipitate washed and air dried. Alternate method: The milk protein solution obtained by removal of fat, lactose and salts as in the first method, is mixed with alcohol or acetone. The precipitate produced is extracted with anhydrous alcohol or acetone and ether.

It is a fine, white, odorless powder, somewhat soluble in water and physiological sodium chloride solution. It is more freely soluble in dilute sodium carbonate or sodium bicarbonate solution.

If 3 Cc. of a solution of cow's milk Allegerns-Squibb in water (1-100) be made alkaline by sodium hydroxide, and a drop or two very dilute cupric sulphate solution added, the whole well mixed and allowed to stand at room temperature for ten minutes the clear fluid above any precipitate which may have formed assumes a violet tinge (biuret reaction).

If to 3 Cc. of a solution of cow's milk Allergens-Squibb in water (1-100) 3 Cc. of glyoxylic acid be added and then 4 to 5 Cc. concentrated sulphuric acid added in such a manner as to make a separate and distinct layer, a violet color develops at the zone of contact (Hopkins-Cole reaction).

*Cow's Milk Allergens-Squibb.*—Produces specific precipitins in animals.

*Cow's Milk Allergens-Squibb.*—Produces specific immunity or anaphylactic reactions in animals.

**EGG ALLERGENS-SQUIBB.**—A powder representing all the soluble proteins contained in hens' eggs.

*Actions and Uses.*—See preceding general article on Biologically Reactive Food Proteins.

*Dosage.*—See preceding general article on Biologically Reactive Food Proteins.

Manufactured by E. R. Squibb & Sons, New York. No U. S. patent or trademark.

Egg Allergens-Squibb is prepared: The shells are discarded and the whites and yolks collected separately. The proteins of the egg white are extracted by dilute sodium chloride solution. From this solution the proteins are obtained after removal of sodium chloride partly by dialysis, by rapid evaporation in vacuo at low temperature or by pouring the protein solution freed from sodium chloride into ten times its volume of acetone or strong alcohol and dehydrating by washing with absolute alcohol or absolute acetone and absolute ether. The other soluble material of the yolks is removed and from the residue the proteins are extracted with sodium chloride, dilute sodium carbonate, sodium bicarbonate solution. This protein solution is reduced to dryness by rapid evaporation in vacuo at low temperature or it may be precipitated by pouring the solution into ten times its volume of strong acetone or alcohol. In the latter case, it is further dehydrated by extraction with absolute alcohol, absolute acetone and ether. The dehydrated egg white protein and the protein of egg yolk are mixed in equal proportions.

It is a fine white powder, odorless, somewhat soluble in water, and physiological sodium chloride solution. More freely soluble in dilute sodium carbonate or sodium bicarbonate solution.

If 3 Cc. of a solution of egg allergens-Squibb in water (1-100) be made alkaline by sodium hydroxide, and a drop or two of very dilute cupric sulphate solution added, the whole well mixed and allowed to stand at room temperature for ten minutes, the clear fluid above any precipitate which may have formed assumes a violet tinge (biuret reaction).

If to 3 Cc. of a solution of egg allergens-Squibb in water (1-100) 3 Cc. of glyoxylic acid be added and then 4 to 5 Cc. concentrated sulphuric acid added in such a manner as to make a separate and distinct layer, a violet color develops at the zone of contact (Hopkins-Cole reaction).

*Egg Allergens-Squibb.*—Produces specific precipitins in animals.

*Egg Allergens-Squibb.*—Produces specific immunity or anaphylactic reactions in animals.

**WHEAT ALLERGENS-SQUIBB.**—A powder representing all the soluble proteins contained in wheat.

*Actions and Uses.*—See preceding general article on Biologically Reactive Food Proteins.

*Dosage.*—See preceding general article on Biologically Reactive Food Proteins.

Manufactured by E. R. Squibb & Sons, New York. No U. S. patent or trademark.

Wheat Allergens-Squibb is prepared: Wheat flour is extracted with sodium chloride solution. The clear solution so obtained is saturated with ammonium sulphate. The precipitated proteins are collected and dialyzed to remove inorganic salts. The remaining protein solution is brought to dryness by any of the methods used for cow's milk allergens-Squibb and egg allergens-Squibb. Wheat gluten, freed from starch, is extracted with 90 per cent. alcohol to remove gliadin. The gliadin is obtained by pouring a strong alcohol solution of it into absolute alcohol. The precipitate is dehydrated by washing with absolute alcohol and ether. This gliadin is rendered soluble by treatment with dilute sodium carbonate solution. From this solution the soluble gliadin is precipitated by any of the methods described under cow's milk allergens-Squibb and egg allergens-Squibb. The two protein preparations thus obtained are mixed to produce wheat allergens-Squibb.

It is a granular powder, nearly white, odorless, somewhat soluble in water, and physiological sodium chloride solution. More freely soluble in dilute sodium carbonate or sodium bicarbonate solution.

If 3 Cc. of a solution of wheat allergens-Squibb in water (1-100) be made alkaline by sodium hydroxide, and a drop or two of very dilute cupric sulphate solution added, the whole well mixed and allowed to stand at room temperature for ten minutes, the clear fluid above any precipitate which may have formed assumes a violet tinge (biuret reaction).

If to 3 Cc. of a solution of wheat allergens-Squibb in water (1-100) 3 Cc. of glyoxylic acid be added and then 4 to 5 Cc. concentrated sulphuric acid added in such a manner as to make a separate and distinct layer, a violet color develops at the zone of contact (Hopkins-Cole reaction).

*Wheat Allergens-Squibb.*—Produces specific precipitins in animals.

*Wheat Allergens-Squibb.*—Produces specific immunity or anaphylactic reactions in animals.

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SATURDAY, FEBRUARY 22, 1919

## THE LIMITATIONS OF WAR-TIME DIETS

Among large groups of persons, comprising literally millions, the exigencies of war represented by voluntary or compulsory rationing have enforced profound dietary changes. The numerous records of a decrease in body weight among civilian populations of affected districts bear witness to the fact that food restrictions of an unusual sort have undoubtedly been experienced by great numbers. In some cases the enforced situation has doubtless been one merely of marked economy in nutrition; but there is every reason to believe that actual undernutrition has occurred in many localities. Thus the war has given a new significance to the question as to the effect of such dietary conditions on the human organism.

Recently we referred to researches conducted both in Europe and in America with reference to the metabolism attending long restricted diet.[1] The decrease in body weight is accompanied by a lowered basal metabolism clearly indicated by the smaller respiratory exchange. Among the attendant phenomena very carefully studied by Benedict and his collaborators in their Springfield "war-starvation" experiments was the characteristic showing of the heart rate. Despite such pronounced changes induced by intentional undernutrition—or perhaps it should be designated purposeful loss of weight—the general health of the subjects appears to have remained surprisingly good. The losses of protein from the body had been very considerable.

These American observations covered a period of a few weeks. There is now available a report by the German physiologists Zuntz and Loewy[2] of Berlin, who have made observations on the effect of war rations on their own metabolism since the beginning of the war. In accordance with statements from von Müller's clinic in Munich they, too, report early losses of weight amounting to more than 10 per cent. The individual of smaller size evolved in this way by dietary restrictions undoubtedly is able to maintain himself on a lower level of nutrition than that represented for his size in prewar days of abundance. Like Jansen in Munich,[3] the Berlin investigators found that a stationary weight was reached after a time and nitrogen equilibrium became possible with an output of less than 10 gm. of nitrogen a day on the allotted war-time ration. In Jansen's subjects this was encountered with a daily intake of 2,100 calories in persons not exceeding 60 kg. (132 pounds) of body weight. The important rôle of a sufficient intake of calories is well illustrated in the case of Loewy. When his diet was reduced to between 1,500 and 1,800 calories, including from 50 to 60 gm. of protein (equivalent to 7 or 8 gm. of nitrogen) a day, his losses of nitrogen from tissue proteins were considerable, and continued unchecked until an addendum of 200 gm. of butter a day was instituted. Thus the laws of the conservation of energy are immutable—even during the patriotic observance of war-time restrictions.

Although it is evidently possible to keep alive through reduction of weight to a figure at which smaller maintenance rations suffice, the experience of Zuntz and Loewy during periods of work carries a sinister warning. They found that the expenditure of energy in an active effort at marching was decidedly larger than had been observed in earlier days when they were more adequately nourished. The increased consumption of oxygen both during the period of exercise and in the stage of recuperation immediately following was sufficiently striking to indicate the unfavorable effect of the undernutrition on muscular performance. This consequence deserves to be prominently noted, because many of the studies on restricted feeding have been concerned with the problem of maintenance alone without due regard to the economy and ease of work under the conditions investigated. The factor of safety may withstand the depreciating effect of a few days or even weeks; but months of enforced economy are likely to bring it nearer to the vanishing point where even moderate effort begins to involve a severe sacrifice.

1. The Reduction of Body Weight in War Time, editorial, J. A. M. A. **71**: 1580 (Nov. 9) 1918; Food and the Human Machine, **71**: 1660 (Nov. 16) 1918.

2. Zuntz, N., and Loewy, A.: Weitere Untersuchungen über den Einfluss der Kriegskost auf den Stoffwechsel, Biochem. Ztschr. **90**: 244, 1918.

3. Jansen, W. H.: Untersuchungen über Stickstoffbilanz bei kalorienarmer Ernärung, Deutsch. Arch. f. klin. Med. **124**: 1, 1917.

## THE DIAGNOSIS AND POSSIBLE NATURE OF HEMOSIDEROSIS

In this pathologic condition, to which von Recklinghausen gave the name of hemochromatosis, an iron-containing pigment, hemosiderin, is found deposited in various organs and tissues. The real significance of this substance, the chemical nature of which is not yet known, has never been discovered. In fact, the fate of hemosiderin seems still to be so uncertain that it is regarded most frequently merely as a waste disintegration product of the blood pigment, hemoglobin, though by some it has been assumed to play a part

or be utilized in the manufacture of new red blood corpuscles.

Hemosiderosis does not manifest itself in any conspicuous way when such quantities of free hemoglobin as must arise in the usual wear and tear or physiologic hemolysis of blood cells find their way into the circulation. At any rate, hemosiderin is not discoverable in the organism by the usual modes of examination except after certain types of excessive hemolysis. Rous and Oliver[1] interpret the evidence hitherto available as indicating that under most circumstances of blood destruction the spleen and red marrow act as depots for hemosiderin and more than suffice for the purpose; but when the breaking down of red cells is fulminant, or large quantities of blood pigment are furnished the organism for a considerable period, the buffer activity of these organs is overcome, and some little hemosiderin is laid down elsewhere.

It is not easy to secure an "accumulation" of blood pigment in the organism experimentally under normal circumstances. If free hemoglobin is injected, it may be eliminated as such in considerable amounts through the kidneys. More striking results have been obtained by Rous and Oliver through the device of transfusing large quantities of blood at frequent intervals into animals. The foreign corpuscles are disintegrated; and in the midst of the plethora of fragments, considerable siderosis arises. According to researches at the Rockefeller Institute for Medical Research, the depositions are comparable to those of human hemochromatosis. In this disease, and likewise in pernicious anemia, the siderosis is found conspicuous in the liver, kidneys, pancreas and certain other organs; whereas in most cases of sudden hemolysis the pigment deposition occurs in the spleen, bone marrow, and sometimes in certain lymph nodes.

The explanation of the difference in the siderosis, that is, the unlike location of the pigment, in these different diseases has long been a mystery. It seems evident that when the deposition is highly specific, as in hemochromatosis, some tissue factor must be concerned in addition to the hemolytic reactions. Rous and Oliver venture this hypothesis: A liver cirrhosis of unknown origin leads to a failure of the organ to deal adequately with the iron-containing products of normal blood destruction, and the latter accumulate in the organism. Widespread pigmentation results automatically. It at length becomes so great as to cause the death of parenchymal cells, especially in the liver and pancreas, thus leading to secondary connective tissue overgrowth. This, in turn, through injury to the remaining parenchyma, hastens the accumulation of pigmentation. By a repetition of the vicious circle, what is essentially a chronic disease becomes at length a rapid progress down-hill. Diabetes appears in many cases as a result of the pancreatic injury, and soon death results.

The diagnosis of diseases like pernicious anemia and hemochromatosis involving a hemosiderosis has sometimes been extremely difficult, unless a conspicuous siderosis of the skin has developed. Necropsy usually reveals far more siderosis in the internal organs, but it cannot be detected during life. However, Rous[2] has ascertained that in disorders that bring about a siderosis of the kidney there are ordinarily present in the urinary sediment cells containing granules of hemosiderin, and often many free granules as well. The finding has proved useful in the diagnosis of hemochromatosis and will probably be of service in the recognition of pernicious anemia, and possibly some other diseases. Rous points out that urinary siderosis is an indication of a renal condition, not a disease. He suggests that the examination of urinary cells for iron pigment may prove to be a decisive method of determining the presence of hemochromatosis in doubtful clinical instances of cutaneous pigmentation.

1. Rous, Peyton, and Oliver, Jean: Experimental Hemochromatosis, J. Exper. Med. **28**: 629, 1918.

2. Rous, Peyton: Urinary Siderosis: Hemosiderin Granules in the Urine as an Aid in the Diagnosis of Pernicious Anemia, Hemochromatosis, and Other Diseases Causing Siderosis of the Kidney, J. Exper. Med. **28**: 645, 1918.

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## SOME DESIRABLE NUTRITIVE QUALITIES OF FISH

The United States Food Administration is making earnest efforts to teach the American people to eat more of the many types of fish that are available, fresh, dried and canned. Although the possible supply of fish is practically unlimited, there are few species at most that have gained any considerable popularity as foods. The tilefish, grayfish, sable-fish, burbot and carp are some of the newer varieties now on the market. There are said to be available nearly seventy kinds of salt water fish and more than thirty fresh water varieties. Yet the average person knows not more than a dozen, and Langworthy[3] further avers that every year the fishermen of the Atlantic coast throw away 10,000,000 pounds of fish that have a higher nutritive value than New England's famous cod. Though our meat consumption is 170 pounds per person per year, we eat on the average only 18 pounds of fish apiece per year. Belgium and France are said to use even less, whereas in England the record mounts to 65 pounds per person.

There are various difficulties to be encountered in any attempted innovations of diet among large groups of people. One is the usual inertia or resistance to change that dietary customs or habits fix in persons. Another is the uncertainty regarding the real physiologic safety of the proposed change—the fear of an impaired nutritive value. Foods acquire deserved or undeserved reputations for wholesomeness or harm-

3. Langworthy, C. F.: The Day's Food in War and in Peace, U. S. Food Administration, 1918, p. 58.

fulness in unexplained ways. The older plan of determining food values solely on the basis of chemical analysis in which proteins, fats, carbohydrates and calories per pound were ascertained has been supplanted to some extent by a physiologic mode of experimentation—by tests in which actual feeding experiments are made to give the clue to nutritive qualities. In this way the possession not only of the familiar proximate principles or nutrients but also of those less well defined properties that belong to the vitamins is demonstrable. The most reliable way now available of determining the value of a protein as a foodstuff is by studying the effect of administering it as a component of an otherwise adequate diet. This is the procedure employed so successfully by Osborne, Mendel, McCollum and their co-workers in ascertaining the comparative biologic value of many pure proteins for growth or maintenance. In this way Drummond[4] in England has investigated fish tissues and demonstrated that the coagulable proteins of the muscle tissue of cod, herring and canned salmon have a nutritive value as high as those derived from beef.

The discovery of Osborne and Mendel[5] that cod liver oil contains one of the vitamins—termed fat-soluble A by McCollum—which exerts a beneficial influence on the growth and health of the animal organism directs attention to the fishes from a different angle. The symptoms referable to the lack of this factor in the diet, among which the condition of xerophthalmia has been described, are said to be relatively scarce among fisher families.[6] Drummond has found, in possible explanation of this, that the so-called "fatty" fish, which contain considerable quantities of fat distributed throughout their muscle tissue, may serve as valuable sources of the important dietary essential, the fat-soluble vitamin. The herring is a particularly striking example.

No appreciable amounts of the water-soluble or antineuritic factor were detected in the muscle tissues of the fishes examined. Small amounts, however, were present in extracts prepared from the whole herring, having originated in all probability from the reproductive organs or other glandular organs. This is in accord with recent observations of Osborne and Mendel regarding the absence of any considerable content of the water-soluble vitamin from skeletal muscle, although glandular organs like liver and kidney possess it in abundance.[7] The newly acquired facts about the nutritive properties of fish thus serve to emphasize their food value at a time when beef—a prominent source of our protein supply—and butter or oleo fats—on which many depend for the fat-soluble vitamin—are not so abundant as in peace times.

4. Drummond, J. C.: The Nutritive Value of Certain Fish, J. Physiol. **52**: 95, 1918.
5. Osborne, T. B., and Mendel, L. B.: J. Biol. Chem. **17**:401, 1914.
6. Mori: Jahrb. f. Kinderh. **59**: 175, 1904.
7. Osborne, T. B., and Mendel, L. B.: Nutritive Factors in Animal Tissues, I, J. Biol. Chem. **32**: 309, 1917; II, ibid. **34**: 17, 1918.

## PHYSICIANS' EXEMPTIONS FOR INCOME TAX

The blanks for the 1918 income tax returns are now being distributed. Each year since the income tax law was passed, the question has arisen: What constitutes the actual income of the doctor? Physicians, more than any other class of professional men, have heretofore confused gross and net income. Owing to professional habits, no dividing line has been drawn between personal and family expenses and expenses necessary for carrying on a practice. Few physicians have kept sufficiently accurate financial records to enable them to separate these two classes of expenditures. Under the income tax law, all actual expenses of carrying on a business may be deducted from the gross income. For the average business man, compilation of such expenditures is easy; for the physician, it is difficult; and in many cases, through ignorance or carelessness, the physician does not credit himself with all the exemptions to which he is entitled. The Internal Revenue Department has ruled that everything that constitutes an actual expense for the transaction of business can be deducted, but that those articles that are purchased as equipment constitute investment and not business expense. Under this ruling, which is eminently fair, the original cost of an automobile used for professional purposes is an investment and cannot be deducted; but the expenses of repairs, upkeep, garage, gasoline, oil, and chauffeur's salary are legitimate expenses that may be deducted. Under this ruling, the following items would be regarded as legitimate deductions: office rent, heating and lighting; office attendants, including office girl or boy, nurse or assistant; office telephone; drugs, dressings, bandages and all material that is to be consumed or expended in the treatment of patients, but not instruments, appliances, office furniture, etc., that are purchased for permanent equipment. Medical journals are a current expense and the subscription price may be deducted, but books are purchased as a permanent addition to one's library and are an investment, the price of which cannot be deducted. Dues in medical societies and organizations, and expenses in attending professional meetings, are legitimate deductions. This fact is understood by few physicians. All the expenses of keeping up and operating an automobile or of maintaining horses, carriages, sleighs, etc., that are used solely for professional purposes may be deducted, but not the original cost of these articles. If an automobile, a team of horses or a carriage is used partly for professional purposes and partly for personal and social use, then the expenses of upkeep should be prorated.

Regarding home expenses, if a physician's office is located in his house and if the house servant devotes any amount of time to assisting the doctor in his work, as office attendant, a proportionate amount of the servant's wages may be deducted. A proportionate

amount of rent, heat and light may also be deducted. The cost of a house telephone may be prorated in proportion to the amount of professional and personal service. Depreciation on automobile, office furniture and equipment and other property necessary for carrying on professional work may also be deducted, provided the amount charged off for depreciation in any one year does not exceed the original cost of the article divided by the number of years in which it may be used. For instance, if an automobile cost $4,000 and is used eight years, no more than $500 a year depreciation can be charged off.

The general principle underlying the income tax law is that each person should pay a tax on his actual personal income for the year, that is, what is left to him for the use of himself and family after deducting all the legitimate expenses of carrying on his business. Physicians heretofore have not availed themselves of exemptions to which they were entitled and have probably, in the majority of instances, paid taxes on a larger sum than their actual net income. Careful study of the instructions, accurate bookkeeping, and care in making up the returns will result in a considerable saving, which is perfectly legitimate and fair under the law.

### THE OCCURRENCE OF PRECURSORS OF METHYL ALCOHOL IN NATURAL FOODS

It is not generally known that methyl alcohol, in what might be termed the potential form of methyl esters and methyl ether, is widely distributed in plant products that enter into the dietary of man. Thus the juices of many fruits contain such compounds; and when they are fermented, methyl alcohol may be liberated to the extent of 1 per cent. of the entire alcohol content formed. The reaction is not associated with the fermentation of the sugars present, but is connected with changes in the residual plant tissues from which the juices are obtained. The so-called pectin substances seem to be the mother substance. Therefore, when fermented fruits are distilled to produce such beverages as brandy, small, yet detectable quantities of methyl alcohol pass into the distillate along with the ethyl alcohol that forms the essential active ingredient of such distilled liquors.

Despite the fact that the pectinous parts of many edible plant forms—green vegetables, fruits and tubers—readily yield small quantities of methyl alcohol, everyday experience shows that these are no menace to the welfare of the body. Nevertheless the traces of alcohol thus ingested are not burned up in the human organism completely. Von Fellenberg,[1] of the Swiss Department of Health, has accordingly been able to demonstrate an output of methyl alcohol, in minute yet measurable traces, varying with the nature of the diet. The range was from inappreciable quantities, when pectin-free diets were consumed, to seven milligrams or more a day during a regimen including fruits. The intake was estimated at several hundred milligrams in the corresponding instances.

These seemingly insignificant figures indicating an almost complete destruction of the methyl alcohol from food sources would call for little comment were not further possibilities of latent danger suggested by the use of the distillates, such as the fruit brandies, containing both ethyl and methyl alcohol. A clinician of large experience with diseases of the eye has observed numerous cases of disturbances of vision in those parts of Switzerland in which fruit brandies, containing methyl alcohol as already indicated, are freely consumed.[1] The patients afflicted with retinitis or retrobulbar neuritis were commonly addicted to the use of these strong alcoholic beverages, rather than to wine or beer. It is scarcely justifiable to associate cause and effect on such meager and indirect evidence. Nevertheless the peculiar incidence of serious eye defects in the case of drinkers of spirits known to contain methyl alcohol derived from the sources of manufacture gives occasion for reflections on this subject.

1. Von Fellenberg, T.: Ueber den Nachweis und die Bestimmung des Methylalkohols, sein Vorkommen in den verschiedenen Nahrungsmitteln und das Verhalten der methylalkoholhaltigen Nahrungsmittel im Organismus, Biochem. Ztschr. **85**: 45, 1918.

## *Current Comment*

### A GOOD STYPTIC?

The control of hemorrhage frequently offers a problem of serious moment to the practitioner. The methods recommended and employed are diverse. Ordinary bleeding has a strong tendency to stop spontaneously with the formation of a clot, so that the benefit attributed to a drug that has been used as a hemostatic cannot easily be evaluated. As is the case with the user of popular "patent medicines," when return to normal conditions ensues, the credit is all too often given to the product employed rather than to physiologic functions that proceed despite the selected treatment. Evidence of this current confusion of cause and effect in relation to local hemostatics has been furnished in considerable detail by Hanzlik[1] of the Western Reserve University School of Medicine, Cleveland. He has tested the efficiency of reputed styptics under conditions of experimentation whereby the degree of control of superficial hemorrhage could be measured with accuracy. As a result it is stated in general that the local application of vasoconstrictor and astringent agents diminishes or arrests local hemorrhage, while vasodilator and irritating agents (without astringent action) increase local bleeding. The value of the newer thromboplastic agents of the kephalin or

1. Hanzlik, P. J.: The Effects of Various Agents on Superficial Hemorrhage and the Efficiency of Local Hemostatics, J. Pharmacol. **12**: 71, 1918; The Effects of Various Systemic Agents on Superficial Hemorrhage, ibid., p. 119.

tissue extract type is considered as still uncertain. Epinephrin remains as a most efficient and desirable hemostatic agent. Its action is temporary, so that it should not be relied on for permanent hemostasis. Tyramin and pituitary extract also have given a good account of themselves, and unlike epinephrin they do not increase the bleeding later. The astringents as a class have proved variably effective, ferric chlorid and tannin standing highest in the list. The popular alum has been "disappointing," to quote Hanzlik. The vaunted cotarnin salts (stypticin and styptol), antipyrin and emetin were found to increase bleeding on local application. When systemic administration was employed, the effects on bleeding were usually parallel to the changes in blood pressure. Hawkins, investigating a number of styptics more than three quarters of a century ago, concluded:

> If, then, pressure for a few minutes on a wounded artery can permanently prevent hemorrhage, when that pressure is made with compresses dipped in various fluids, which neither produce contraction of artery nor facilitate coagulation, we are justified in concluding that if styptics are employed the cessation of the hemorrhage is to be ascribed principally, if not entirely, to the pressure or at all events in a minor degree to the action of the styptic.

The work of Hanzlik would indicate that our progress during the past century in this particular field has not been phenomenal or startling.

## BACTERIA AND AMINO-ACIDS

In recent years the science of bacteriology has made noteworthy advances in the domain of the metabolism of the micro-organisms. It has developed that in many respects these low forms of life exhibit in their nutritive behaviors many resemblances to the higher animals which have been studied longer from the physiologic standpoint. Only a few years ago it was still believed that proteins undergo only slight digestive alterations prior to their absorption, whereas today it is generally accepted that the disintegration of these nitrogenous substances proceeds profoundly so that they leave the alimentary canal for the most part in the form of amino-acids. Protein metabolism in animals thus starts with these relatively simple products. Rettger and his collaborators at Yale University have demonstrated that native proteins like those of meat and egg are attacked only with difficulty by many types of bacteria. A preliminary cleavage of the protein molecule seems to be essential to the utilization of the nitrogenous fragments. More recently Robinson and Rettger[1] have furnished the added information that bacteria do not require proteins, even in minute quantities, to carry on their normal cultural development, but obtain their sustenance from less complex substances, as, for example, the amino-acids and perhaps some of the simpler polypeptids. The importance of this finding is more far reaching than appears on the surface. It suggests the possibility of accomplishing satisfactorily that which has been desired since the early days of bacteriology, namely, the growth of bacteria on synthetic mediums of known composition. Peptone — made in Germany — and indefinite infusions of complex character have all too long served as the sole mediums for culture work. It is a decided advantage to start with controllable and better defined compounds in the practical growth of bacteria and study of their products. These newer indications, together with the epoch-making recent contributions on the rôle of the hydrogen-ion concentration, and perhaps the suggestion of a part played by vitamins in bacterial growth, should help to pave the way for more rational procedures in enormously important fields of bacteriologic practice.

1. Robinson, H. C., and Rettger, L. F.: The Growth of Bacteria in Protein-Free Enzyme and Acid Digestion Products, J. Bacteriol. 3: 209, 1918.

## THE RESULT IN OHIO

In THE JOURNAL, last week,[1] attention was called to the position taken by the legislative committee of the Ohio State Medical Association on the bill exempting Christian scientists from the provisions of the medical practice act. It was pointed out that the medical profession of Ohio had done its full duty in showing the dangers to public health involved in the passage of the bill, and that the responsibility rested where it belonged, on the lay members of the legislature. The prompt reaction of these members to this definite placing of responsibility is shown by the defeat of the bill in the house last week by the decisive vote of eighty-three to twenty-two. No possible suspicion of self-interest can be attributed to the physicians, either as members of the state legislature or as representatives of the state association, who took such a position. The bill was defeated because the overwhelming majority of the members of the legislature were convinced that its passage was not in the interest of the public. It is safe to say that the influence and standing of the Ohio State Medical Society in the eyes of the state legislature and the public are far better than would have been the case if its members had participated aggressively in political activities against the measure.

1. Ohio Finds a Better Way, Current Comment, J. A. M. A. 72: 497 (Feb. 15) 1918.

**Open Air Classes.**—Feb. 1, 1917, the New York City Department of Health officially took charge of the fresh air classes in the public schools. At that time there were eighty-four classes. According to *School Health News*, November, 1918, there are now 102, and failure to increase the number still further is due to the lack of available rooms, though the demand for additional classes is great. Types of children admitted to the classes comprise children exposed to tuberculosis at home, or in whose families there have been recent deaths from this disease; arrested or cured children; those suffering from malnutrition; those who become tired easily or show languor or fatigue before the end of the day; those suffering from nervous diseases, except chorea; those frequently absent on account of cold, bronchitis, etc.; those suffering from cardiac disease, who are recommended by their physicians as being proper for these classes. The class rooms are situated outdoors in parks, on ferry boats, on the roofs of schoolbuildings, or in rooms in schoolbuildings having specially arranged windows. These children are all fed at least once a day, and some have an extra luncheon morning and afternoon. The results show that most of them gain in weight, some improve in their scholarship, most of them are able to advance in their regular grades, and the general health improves.

# Medical Mobilization and the War

## Personnel of the Medical Corps

For the week ending February 14, the Medical Corps contained 22,305 officers, a decrease from the previous week of 516. The Medical Reserve Corps contained 626 officers. The total number of medical officers discharged since the beginning of the war is 11,315.

## Distinguished Service Awards

MARK M. DUFFY, Lieut., M. C., U. S. Army, 124th Field Artillery, Danville, Ill. For extraordinary heroism in action near Romagne, France, Nov. 1, 1918. Lieutenant Duffy displayed exceptional bravery in caring for the wounded and directing their evacuation under heavy shell fire. During the action he went under concentrated fire and rescued several wounded men.

ALFRED M. BERGSTEIN, Lieut., M. C., U. S. Army, 18th Infantry, Pottsville, Pa. For extraordinary heroism in action near Exermont, France, Oct. 8, 1918. Under heavy shell fire, Lieutenant Bergstein cared for the wounded although he had been severely wounded and was suffering great pain. He refused to be evacuated until all the wounded had been treated.

HIRAM E. ROSS, Major, M. C., U. S. Army, 18th Infantry, Danville, Ill. For extraordinary heroism in action near Villers-Tournelle, France, May 3-4, 1918. While under heavy bombardment, and working in an area saturated with gas, Major Ross showed extreme gallantry and efficiency, in caring for the more dangerously wounded, removing his mask at times during the attack to better ascertain the extent of the wounded. It was, while thus acting that he was severely gassed.

## HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

NOTE.—In the following list, L. signifies lieutenant; C., captain; M., major; L. C., lieutenant-colonel; Col., colonel, and B. G., brigadier-general.

*ALABAMA*

Ashland—Owens, A. H. (C.)
Fairfax—Morgan, J. C. (L.)
Gordo—Shackleford, W. L. (L.)
Huntsville—Brooks, O. J. (C.)
Ishkooda—Chandler, J. R. (L.)
Mobile—Beck, J. E. (L.)
Phill Campbell—Ford, L. H. (L.)

*ARKANSAS*

Ozark—Blackburn, E. W. (L.)
Ratcliff—Harkins, R. A. (L.)
Walker—Edrington, D. (L.)
Wilmot—Crandall, M. C. (L.)

*CALIFORNIA*

Los Angeles—Colloran, J. E. (C.)
Modesto—Clark, I. J. (L.)
Robertson, J. C. (M.)
Sacramento—Simmons, S. E. (C.)
San Francisco—Pruett, H. J. (C.)
San Jose—Hablutzel, C. E. (C.)
Sunnyvale—Hall, G. P. (L.)

*COLORADO*

Denver—Gengenbach, F. P. (C.)

*CONNECTICUT*

Hartford—Brayton, H. W. (L.)
Lawton, F. L. (C.)
New Canan—O'Shaughnessy, E. J. (L.)
Putnam—Perry, E. F. (L.)

*DELAWARE*

Millsboro—Dodd, H. H. (L.)

*DISTRICT OF COLUMBIA*

Washington—Henning, S. C. (C.)
Neill, T. E. (M.)
Neuman, L. (L.)

*FLORIDA*

Green Cave Springs—Scraggs, S. A., Jr. (L.)
Jacksonville—Gammon, J. E. (C.)
Middleburg—Copp, F. A. (L.)
Orlando—Swift, M. B. (M.)
Pensacola—Kennedy, S. R. M. (C.)
West Tampa—Garcia, P. M. (L.)

*GEORGIA*

Atlanta—Ayer, G. D. (C.)
Brunswick—Greer, C. B. (L.)
Fitzgerald—Ware, R. M. (C.)
Lincolnton—Sturkey, E. L. (L.)
Lumpkin—Lynch, C. S. (L.)
Middleton—Daniel, H. M. (L.)
Morven—Meadows, C. B. (L.)
Screven—Tyre, J. L. (L.)

*IDAHO*

Idaho Falls—Blevins, D. L. (C.)

*ILLINOIS*

Belleville—Bechtold, A. F. (C.)
Chicago—Cubbins, W. R. (M.)
Doering, E. J. (L. C.)
Ellison, G. (C.)
Hanchett, R. C. (L.)
Hopkins, L. A. (L.)
Napiantek, W. D. (L.)
Perry, E. B. (L.)
Ridlon, J. (M.)
Robinson, R. D. (L.)
Scholter, E. A. W. (L.)
Seyl, H. H. (L.)
Sidwell, C. E. (L.)
Smith, F. A. (L.)
Stulik, C. K. (L.)
Weis, A. H. (C.)
De Kalb—Wright, H. G. (C.)
Effingham—Damron, E. L. (C.)
Middletown — McPherson, C. H. (L.)
Moline—Beam, H. A. (C.)
Peoria—Page, T. H. (C.)
Rock Island—Sala, S. M. (C.)
Seymour—Hartrick, L. E. (L.)

*INDIANA*

Arcadia—Thayer, J. O. (L.)
Bluffton—Dickason, F. M. (L.)
Center Point — Rentschler, L. C. (L.)
Gary—Yarrington, C. W. (C.)
Huntingburg—Bretz, W. D. (L.)
Indianapolis—Given, W. S. (L.)
Johnson, W. F. (L.)
Lawrence—Ratliff, L. H. (L.)
Logansport—Terflinger, F. W. (C.)
Morristown—Wiltshire, R. A. (C.)
New Castle—MacDonald, H. W. (L.)
New Town—Stanfield, W. V. (C.)
Riley—Brunker, H. V. (L.)
Tynor—Thompson, A. A. (L.)
West Point—Rowland, C. L. (C.)
Winslow—DeTar, G. B. (L.)
Yorktown—Downing, J. F. (L.)

*IOWA*

Ames—Dyer, B. G. (C.)
Avoco—Spaulding, G. A. (C.)
Breda—Bookhart, E. W. (C.)
Cedar Rapids — Stansbury, J. E. (L.)
Farmington—Mott, W. H. (L.)
Nichols—Muench, V. O. (L.)
Roland—Snyder, J. A. (L.)
Walcott—Shafer, L. E. (L.)
Waterloo—Sage, F. C. (C.)

*KANSAS*

Moline—Shaffer, C. E. (C.)
Simpson—Jennings, G. (L.)
Topeka—Bowen, W. F. (C.)

*KENTUCKY*

Arlington—Dunn, J. F. (L.)
Carrollton—North, E. A. (L.)
Jackson—Swango, O. H. (L.)
Louisville—Dyer, J. W. (L.)
Holmes, B. L. (C.)
Houck, I. T. (C.
Madisonville—Sory, J. D. (M.)

*LOUISIANA*

Baton Rouge—McVea, C. (C.)
Blanchard—Doles, H. P. (L.)
Marion—Wheelis, A. B. (L.)
New Orleans—Smith, J. W. A. (L.)
Shreveport—Smith, W. W. (L.)
Slidell—Polk, J. F. (L.)
White Castle—Deans, F. R. (L.)

*MAINE*

Augusta—McKay, R. L. (L.)
Brunswick—Whittier, F. N. (C.)

*MARYLAND*

Baltimore—Silberman, D. (L.)
Princess Anne—Lankford, H. M. (C.)

*MASSACHUSETTS*

Boston—Derby, G. S. (L. C.)
Devenny, J. H. (L.)
Brockton—McNamara, J. J. (C.)
Cambridge—Darling, E. A. (M.)
Fall River—LeBoue, J. S. (C.)
Holyoke—Lynch, H. E. (L.)
Kingston—Holmes, A. B. (L.)
Lawrence—Bacon, J. P. A. (L.)
Springfield—Merritt, V. S. (C.)
Winchester—Dennett, D. C. (C.)

*MICHIGAN*

Comstock Park—Boet, F. A. (C.)
Highland Park—Morse, P. F. (L.)
Portland—Bradfield, J. D. (L.)
Ypsilanti—Post, H. I. (L.)

*MINNESOTA*

Jordan—Phillips, W. H. (L.)
Milaca—Bacon, H. P. (C.)
Minneapolis — Scheldrup, N. H. (C.)
Stomel, J. L. (L.)
Rochester—Mason, J. C. (M.)
Winona—Robbins, C. P. (C.)

*MISSISSIPPI*

Boyle—Shivers, E. E. (L.)
Fearn Springs—Haggard, R. A. (L.)
Fitchburg—Kearney, J. H. (L.)
Greenwood—Austin, B. D. (C.)
Hernando—Brevard, L. H. (L.)
Ruleville—Burchfield, B. E. (L.)
Saucier—Hopper, H. P. (L.)

*MISSOURI*

Fruitland—Poe, C. A. (L.)
Hartsburg—Mcgee, C. P. (L.)
Ironton—Gay, R. W. (C.)
Kansas City—Hearst, A. L. (L.)
Meade, R. H. (M.)
Middleton, J. (C.)
Parmenter, C. G. (L.)
Ruhl, I. E. (C.)
St. Louis—Althaus, C. J. (L.)
Baerens, O. F. (C.)
Gettinger, A. J. (L.)
Hughes, M. R. (C.)
Say, W. J. (C.)
Thurman, J. L. (L.)
Washington—Muench, O. L. (C.)
Windsor—Blackmore, T. A. (C.)
Winfield—Hardesty, J. F. (C.)

*MONTANA*

Great Falls—Dolan, A. N. J. (C.)
Lewistown—Davis, F. C. (C.)

*NEBRASKA*

Columbus—Evans, W. S. (C.)
Carleton—Westerhoff, J. G. W. (C.)
Fairmont—Ashby, A. A. (L.)
Geneva—Hickman, J. C. (L.)
Nemaha—Kelly, P. D. (L.)

*NEVADA*

Las Vegas—Hewetson, H. L. (L.)

*NEW HAMPSHIRE*

Bennington—Tibbetts, G. D. (C.)
Concord—Coates, E. W. (L.)
Groveton—Hight, C. E. (L.)
Manchester—Burpee, B. P. (C.)
Nashua—McLaughlin, P. J. (C.)

*NEW JERSEY*

Atlantic City—Thigpen, H. G. (L.)
Branchville—Riddel, H. E. (C.)
Jersey City—Mount, E. M. (L.)
Newark—Eagleton, W. P. (M.)
Fasano, G. (L.)
Zehnder, A. C. (C.)
Riverton—Mills, C. S. (L.)

*NEW MEXICO*

Roswell—Fall, H. V. (L.)

*NEW YORK*

Albany—MacFarlane, A. (M.)
Binghamton—Sanford, L. E. (L.)
Brooklyn—Cardozo, A. L. (C.)
Dederick, A. S. (L.)
Faske, L. (L.)
Holzberger, J. C., Jr. (L.)
Reed, F. G. (C.)
Davenport—Craig, T. L. (L.)
Gainesville—Skiff, G. S. (M.)
New York—Armstrong, A. S. (C.)
Baum, S. (L.)
Fiske, J. P. (M.)
Kahn, M. H. (L.)
McTiernan, J. M. (L.)
Pellini, E. J. (L.)
Rice, F. W. (C.)
Subkis, J. (C.)
Van Duzee, B. F. (L.)
Wheeler, G. W. (L.)
Ogdensburg — Hutchings, R. H. (M.)
Oyster Bay—Gibbons, R. V. (C.)
Rochester—Carpenter, F. M. (L.)
Syracuse—Reifenstein, E. C. (C.)
Verona—George, J. D. (C.)
Waverly—Smith, A. J. (L.)

*NORTH CAROLINA*

Belmont—Hall, P. B. (L.)
Elizabethtown — Bullard, G. F. (L.)
Hickory—Menzies, H. C. (C.)

*NORTH DAKOTA*

Grand Forks—Dean, A. (L.)
Hettinger—Voss, C. (L.)

*OHIO*

Bellbrook—Vandeman, A. N. (L.)
Cleveland—Brooks, E. R. (C.)
Fowler, H. D. (L.)
Verovitz, C. H. (L.)
Columbus—Evans, T. A. (C.)
Custar—Biggs, I. L. (C.)
Dover—Marquand, B. A. (L.)
East Liverpool—Andrews, O. P. (L.)
Girard—Parillo, G. A. (L.)
Marion—Mattox, S. W. (L.)
Maumee—Clark, G. W. (L.)
North Star—Hartzell, J. D. (L.)
Payne—Evans, K. C. (L.)
Quincy—Curl, A. M. (L.)
Reading—Carr, A. H. (L.)
Strasburg—Bainter, G. F. (L.)
Tiffin—Henderson, R. R. (C.)
Porter, E. H. (C.)
Williard, G. W. (C.)
Urbana—Houser, D. C. (C.)
Youngstown — Hamilton, J. K. (L.)
Meyer, N. N. (L.)

*OKLAHOMA*

Grandfield—Foshee, W. C. (L.)
Lawton—Barber, G. S. (L.)
Oklahoma—Allen, E. P. (L.)
Okmulgee—Perry, V. (C.)
Pauls Valley—Johnson, G. L. (L.)
Tarr River — Garlington, E. F. (L.)
Wapanucka—Ellis, J. M. (L.)

*OREGON*

Pendleton—Boyden, G. L. (L.)
Portland—Streit, E. H. (C.)

*PENNSYLVANIA*

Athens—Holcomb, C. P. (C.)
Bradford—Hogan, W. C. (M.)
Chatham Run—Gerson, J. M. (L.)
Connellsville—Junk, J. L. (C.)
Kingston—Dattner, A. A. (L.)
Malvern—Kurtz, C. S. (C.)
Mount Pleasant—Depta, M. (L.)
Myerstown—Gockley, H. F. (L.)
New Kensington—Wilson, L. F. (L.)
Philadelphia—Bigler, C. A., Jr. (L.)
Peters, F. C. (L.)
Pittsburgh—Evans, D. R. (L.)
Jennings, C. W. (C.)
Polk—Dwyer, J. E. (C.)
Reading—Schantz, H. F. (L.)
St. Petersburg—Beals, C. W. (L.)
Swissvale—Pyle, W. T. (C.)
Uniontown—Jeffrey, R. H. (L.)
York—Smyser, H. D. (C.)

*SOUTH CAROLINA*
Charleston—Kollock, C. W. (M.)
Great Falls—Lucas, J. E. (L.)
Hartsville—Egleston, W. (C.)
Pendleton—Day, R. B. (L.)

*SOUTH DAKOTA*
Yankton—Smith, F. C. (L.)

*TENNESSEE*
Cornersville—Moffitt, S. A. (C.)
Dresden—Fields, T. W. (C.)
Ducktown—Guinn, A. J. (L.)
Kimsey, W. W. (L.)
Joelton—Miller, J. R. (L.)
Knoxville—Lynn, W. N. (C.)
Pikeville—Greer, D. A. (C.)
Seviersville—Huff, J. H. (L.)
Somerville—Morris, J. W. (C.)
Springfield — Shoulders, H. S. (L.)
Woodland Mills—Burrus, S. (L.)

*TEXAS*
Aquilla—Montgomery, G. L. (L.)
Bullard—Chambers, B. F. (L.)
Edna—Hogg, G. (L.)
Lamasco—Gill, J. J. (L.)
Waxahachie—Tenery, W. C. (L.)

*UTAH*
Bingham Canyon—Smith, U. H. (L.)
Salt Lake City—Felts, H. B. (C.)

*VERMONT*
Bakersfield—Abernethy, L. (L.)
Barre—Stewart, J. W. (L.)
Rutland—Hamilton, J. M. (C.)

*VIRGINIA*
Abingdon — McChesney, W. W. (L.)
Bluefield—Steele, H. G. (C.)
Newport News — Buxton, J. T. (C.)
Richmond—Bradshaw, C. L. (L.)
Gill, W. W. (M.)
Muncy, J. B. (L.)

*WASHINGTON*
Rosalie—Brand, W. W. (L.)
Seattle—Pontius, N. D. (C.)
Winkel, A. H. (L.)

*WEST VIRGINIA*
Charleston—Young, H. H. (C.)
Hinton—Dillon, M. L. (L.)
Varney—Musick, R. M. (L.)
Wheeling—Devereaux, R. L. (L.)
Meighen, T. H. (C.)

*WISCONSIN*
Appleton—Marshall, V. F. (C.)
Burlington—Prouty, W. A. (C.)
Green Bay—Mix, H. C. (C.)
Owen—Kyes, S. M. (L.)
Waupaca—Andrews, C. W. (M.)

## MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

*ALABAMA*
Auburn—Yarbrough, C. S.
Birmingham—Smith, W. B.
Montgomery—McGehee, W. W.

*CALIFORNIA*
Chico—Moulton, D. H.
Grass Valley—Jones, C. P.
Los Angeles—Cochran, G. H.
Fredericks, D. P.
Frick, D. J.
McNab, T. R.
Moore, J. R.
Morton, L. B.
Snure, H.
Sacramento—Lyman, T.
San Diego—Thornton, A. J.
San Francisco—Barkan, H.
Bohm, J. E.
Graham, H. B.
Hill, H. P.
Reed, A. C.
Rixford, E.
Stillman, S.
Thorne, I. W.

*COLORADO*
Boulder—Profitt, R. V.

*CONNECTICUT*
Bridgeport—Roberts, E. R.

*DISTRICT OF COLUMBIA*
Washington—Bellinger, V. E.
Taylor, L. H.
Zigmand, J. W.

*FLORIDA*
Tampa—Duke, R. R.

*GEORGIA*
Augusta—Cutter, W. D.

*IDAHO*
Boise—Cluen, R. J.

*ILLINOIS*
Chicago—Hass, G. A.
Knox, O. M.
O'Connell, J. C.
Zeisler, E. P.
Mulkeytown—Phillips, F. A.
Springfield—Southwick, H. H.

*INDIANA*
Hamilton—Cameron, D. F.
Indianapolis—Reed, J. V.
Weil, H. J.
Kirklin—Harding, L. L.
Markville—Williams, F. M.
New Haven—Bandelier, R. H.
Plymouth—Hardy, J. J.

*IOWA*
Huxley—Keller, G. E.

*KANSAS*
Peabody—Johnson, E. H.
Topeka—Weidling, W. H.

*KENTUCKY*
Louisville—Bayless, B. W.
Collier, T. R.

*MAINE*
Bethel—Tibbetts, R. R.
Portland—O'Sullivan, T. J.

*MARYLAND*
Baltimore—Conrey, A. F.
Lewis, R. M.
Shippen, L. P.
Cumberland—Littlefield, J. R.

*MASSACHUSETTS*
Boston—Barney, W. O.
Cheever, A. W.
Crandon, L. G.
Donnell, H. A.
Rosenau, M. J.
Von Meysenburg, L.
Cambridge—Dudley, A. W.
Stevens, H. P.
Fitchburg—Jennings, C. H.
Lynn—McDonald, J. F.
Manchester—Burnett, F. L.
New Bedford—Risley, J. N.

*MICHIGAN*
Detroit—Burr, G. C.
Williams, S. K.
Jackson—Peterson, E. S.
Royal Oak—Cameron, D. A.

*MISSOURI*
Kansas City—Lea, J. A.
Vieregg, F. R.
St. Louis—Briggs, G. C.

*NEBRASKA*
Omaha—McCrann, P. M.

*NEW JERSEY*
Trenton—Kent, M. M.
Upper Montclair—Areson, W. H.

*NEW HAMPSHIRE*
Rochester—Roberts, W. J.

*NEW YORK*
Albany—Bailey, C. L.
Brooklyn—Barber, R. F.
Collins, J. J.
Hanan, J. T.
Huffman, O. V.
Lee, J. A.
Meeks, F. R.
Moitrier, W.
Morris, E. J.
Watt, J.
Wood, J. G.
Ithaca—Johnson, S. C.
Mechanicsville—Huntington, P. H.
New Rochelle—Fulton, C. H.
Markel, S. S.
New York—Berkowitz, W.
DuBois, E. F.
Lubin, P.
Lynch, J. M.
Martin, L. G.
New York—McAlpin, K. R.
Polon, L.
Steinmetz, F. C.
Wyeth, G. A.
Rochester—Finley, E. L.
Schenectady—Garlick, J. N. B.
Syracuse—Vogt, G. C.

*NORTH CAROLINA*
Greensboro—Hicks, V. M.
Kingston—Parrott, M. C.

*OHIO*
Bellefontaine—Butler, R. H.
Columbus—Forman, J.
Hauer, A. M.
Reel, P. J.
Coshocton—Magness, A. P.
Toledo—Brockway, P. B.
Dolloway, L. M.
Moots, C. W.

*OREGON*
Eugene—Hayden, D. N.
Portland—Blancy, F. J.
Fortmiller, G. E.
Hendershott, H. M.
Lieser, R. L.
Scott, E. K.

*PENNSYLVANIA*
Canton—Dann, A. E.
Farrell—Kelly, R. A.
Philadelphia—Bristol, F. E.
Herman, J. L.
Keegan, A. P.
Leopold, R. S.
Lyon, B. B. V.
McCouch, G. P.
Moore, W. F.
Petty, O. H.
Saurman, J. S.
Pittsburgh—Aufhammer, C. H.
Billings, F. T.
Boggs, R. H.
McElliroy, W. S.
Moyer, K. P.
Weiss, E. A.
West Chester—Patrick, J. K.

*RHODE ISLAND*
Providence — Van Benschoten, G. W.

*SOUTH CAROLINA*
Aiken—Hutson, T. W.
Charleston—Thomas, P. S.
Clio—Mahoney, A. F.

*TENNESSEE*
Nashville—Friedman, H. F.

*TEXAS*
Carbon—Stubblefield, M. L.
Denison—McGregor, C. T.
Houston—Dailey, L.
Whitewright—May, R. R.

*VIRGINIA*
Ballsville—Carnal, R. C.
Chatham—Bennett, C. D.
Danville—Pritchett, C. B.
Norfolk—Byrd, G. B.
Faulkner, G. E.
Portsmouth—McAlpine, L. A.
Suffolk—Gibson, W. C.
Wakefield—Drewry, W. L.

*WASHINGTON*
Chehalis—Johnson, W. R.
Everett—Parsons, I. W.
Seattle—Abraham, E. D.
Hoff, E.
Parry, I. A.
Sturgis, M. G.

## ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

### Alabama

*To Fort Sill, Okla.*, base hospital, from Camp Devens, Lieut. M. J. HEATH, Pratt City.

### Arkansas

The following order has been revoked: *To Walter Reed General Hospital* for instruction, from Camp Lee, Capt. R. C. KORY, Little Rock.

### California

*To Canal Zone*, from Camp Kearney, Lieut. W. S. HARTFORD, Los Angeles.

*To Carlisle, Pa.*, from Camp Grant, Major M. A. WILLIAMSON, Long Pine.

*To Denver, Colo.*, from Camp Kearney, Lieut. J. B. LUCKIE, Pasadena; from Fort Winfield Scott, Capt. J. E. FAHY, Los Angeles.

*To Fort Bliss, Texas*, base hospital, from Camp Kearney, Lieut. F. J. BARNET, Los Angeles.

*To Houston, Texas*, Ellington Field, from Berkeley, Capt. B. F. SANDOW, Oakland.

*To report to the commanding general*, Western Department, from Camp Kearney, Major K. B. TURNER, Los Angeles.

*To San Francisco, Calif.*, Letterman General hospital, from Camp Fremont, Capt. F. P. BOWEN, Los Angeles; from Camp Kearney, Lieut. T. J. NOLAN, San Francisco.

### Colorado

* *To Denver, Colo.*, from Boston, Capt. C. G. McEACHERN, Denver.

*To San Francisco, Calif.*, from Camp Dodge, Capt. J. D. WILSON, Ideal.

### Connecticut

The following order has been revoked: *To Fort McHenry, Md.*, from Camp Dix, Major W. F. VERDI, New Haven.

### Delaware

*To New Haven, Conn.*, from Camp Dix, Capt. M. I. SAMUEL, Wilmington.

### District of Columbia

The following order has been revoked: *To Rockefeller Institute*, for instruction, and on completion *to New York*, from Camp Meade, Capt. W. J. MANNING, Washington.

### Georgia

*To Camp Lee, Va.*, base hospital, from Camp Dix, Lieut. H. I. BATTEY, Atlanta.

### Illinois

*To Camp Devens, Mass.*, base hospital, from Walter Reed General Hospital, Capt. M. L. GALLAGHER, Chicago.

*To Fort Oglethorpe*, from Camp Dix, Major W. R. RAINEY, Salem.

*To Fort Sheridan, Ill.*, from Camp McClellan, Capt. J. M. AXELSNO, Chicago; from Fort Des Moines, Capt. J. MYERS, Chicago.

*To Hoboken, N. J.*, from Camp Custer, Capt. J. D. HAWKS, Cambridge.

*To Philadelphia, Pa.*, from Dansville, Lieut. C. J. CHALLENGER, Chicago.

*To report to the commanding general*, Southern Department, from Austin, Major O. A. SUTTLE, Mount Vernon.

The following order has been revoked: *To Army Medical School, from Fort Oglethorpe*, Capt. J. W. HALL, Chicago.

### Indiana

*To Fort Sheridan, Ill.*, from Camp Gordon, Lieut. A. L. LOOP, Economy.

*To Long Beach, N. Y.*, from Camp Pike, Lieut. H. G. HAMER, Indianapolis.
*To Otisville, N. Y.*, from Camp Devens, Capt. E. A. CRULL, Fort Wayne.
*To San Diego, Calif.*, Rockwell Field, from Vancouver, Capt. F. L. DARROW, East Haven.
*To West Baden, Ind.*, from Camp Sheridan, Capt. H. L. MILLER, West Baden.

### Iowa

*To Fort Logan H. Roots, Ark.*, from Camp Logan, Capt. A. M. SHERMAN, Clarinda.
*To Fort Snelling, Minn.*, from Otisville, Capt. W. L. HEARST, Cedar Falls.
*To Hoboken, N. J.*, from Fort Des Moines, Lieut.-Col. A. VON SCHRADER.

### Kansas

*To Chicago, Ill.*, from Fort Des Moines, Capt. C. M. FITZPATRICK, Salina.

### Kentucky

*To Boston, Mass.*, Northeastern Department, from Camp Devens, Major R. W. OGILVIE, Princeton.

### Louisiana

*To Fort Sam Houston, Texas*, base hospital, from Camp Dix, Major U. MAES, New Orleans.

### Maryland

The following order has been revoked: *To Camp Lee, Va.*, base hospital, from Camp Meade, Lieut. G. R. MICKLEWAIT, Baltimore.

### Massachusetts

*To Boston, Mass.*, from Camp Dix, Capt. F. E. LEWIS, Nantucket; from Camp Gordon, Lieut. A. A. CUSHING, Brookline, from Walter Reed General Hospital, Lieut. L. H. ROCKWELL, Boston.
*To Camp Lee, Va.*, from Camp Meade, Capt. W. J. HAMMOND, Boston. Base hospital, from Camp Devens, Capt. O. M. DEEMS, Springfield.
*To East Norfolk, Mass.*, from Camp Dix, Lieut. W. OVERHOLSER, Westboro.
*To Fort Riley*, base hospital, from Camp Dix, Major C. C. BECKLEY, Lancaster.
To New Haven, Conn., from Camp Custer, Lieut. W. C. JENSEN, Worcester.

### Michigan

*To Army Medical School* for instruction, from Camp Dix, Major F. C. KIDNER, Detroit.
*To Detroit*, Mich., from Camp Jackson, Capt. K. R. HARRIS, Detroit.
*To Fort Sam Houston, Texas*, base hospital, from Colonia, Major K. W. MAY, Detroit.
*To Plattsburgh Barracks, N. Y.*, from Camp Dix, Major J. T. SAMPLE, Saginaw.

### Minnesota

*To Camp Meade, Md.*, base hospital, from Fort Oglethorpe, Lieut. H. W. STONE, Minneapolis.

### Missouri

*To Fort McPherson, Ga.*, from Camp Dix, Major S. I. SCHWAB, St. Louis.
*To Fort Sheridan, Ill.*, from Camp Gordon, Capt. F. J. PFEFFER, St. Louis; from Newport News, Major F. W. BAILEY, St. Louis.
*To Houston, Texas*, Ellington Field, from Fort Crook, Lieut. O. R. ENGLEMANN, St. Louis.
*To Rochester, Minn.*, Mayo Clinic, for instruction, from Rockefeller Institute, Lieut. W. S. CULPEPPER, Willow Springs.

### Nebraska

*To Camp Dodge, Iowa*, as orthopedic surgeon, from Camp Zachary Taylor, Lieut. L. K. STRATE, Hastings. Base hospital, from Fort Des Moines, Lieut. W. E. WOLCOTT, Omaha.
*To Carlisle, Pa.*, from Camp Lee, Lieut. C. M. HYLAND, Omaha.
*To Walter Reed General Hospital, D. C.*, from Camp Travis, Lieut. J. D. McCARTHY, Omaha.

### Nevada

*To San Diego, Calif.*, Rockwell Field, from Vancouver, Lieut. D. W. BEDINGER, Ruth.

### New Hampshire

*To Camp Zachary Taylor, Ky.*, base hospital, from West Baden, Major A. F. WHEAT, Manchester.

### New Jersey

*To Carlisle, Pa.*, from Oteen, Major J. J. BRODERICK, Jersey City.
*To Fort Douglas, Utah*, from Camp Dix, Capt. A. F. GRAHAM, Paterson.
*To Otisville, N. Y.*, from Fort Riley, Capt. H. S. SMITH, Newark.
*To Walter Reed General Hospital, D. C.*, from New Haven, Capt. G. L. COOK, Penns Grove.

### New York

*To Camp Lee, Va.*, base hospital, from Army Medical School, Lieut. C. GOLDMAN, Brooklyn; from Camp Dix, Majors W. M. BRICKNER, New York; F. N. C. JERAULD, Niagara Falls.
*To Camp Meade, Md., to examine the command* for nervous and mental diseases from Camp Meade, Lieut. R. BOGAN, Brooklyn.
*To Fort McPherson, Ga.*, from Camp Sevier, Lieut. S. L. SCIBETTA, Buffalo.
*To Fort Warren, Mass.*, from Camp Dix, Major E. CUSSLER, New York.
*To Hoboken, N. J.*, from Camp Dix, Capt. E. M. CONNELLY, New York; Lieut. M. J. TAYLOR, New York; from Camp Grant, Major W. A. MURPHY, New York.
*To Jefferson Barracks, Mo., to examine the command* for cardiovascular diseases, from Lakewood, Lieut. C. SHOOKHOFF, Brooklyn.
*To Long Beach, N. Y.*, from Camp Dix, Lieut.-Col. J. J. MOORHEAD, New York.
*To New York*, Bellevue Hospital, as assistant instructor, from Washington, Lieut.-Col. W. J. ELSER, New York.
*To Otisville, N. Y.*, from Camp McClellan, Capt. C. H. ERWAY, Elmira.
*To report to the commanding general*, Southeastern Department, from Camp Joseph E. Johnston, Capt. G. E. CLARK, Brooklyn.
*To Rockefeller Institute* for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Camp Lee, Capt. M. I. BLANK, New York.
*To Walter Reed General Hospital, D. C.*, from Camp Gordon, Lieut. L. F. KNOLL, Brooklyn.

### Ohio

*To Camp Sherman, Ohio*, base hospital, from Camp MacArthur, Capt. W. E. RANZ, Youngstown.
*To Camp Upton, N. Y.*, base hospital, from Fort McHenry, Lieut. J. F. WILLIAMS, Cincinnati.
*To Fort Sheridan, Ill.*, from Camp Gordon, Capt. E. T. KNOOP, Cincinnati; Lieut. O. C. McDOWELL, Akron.
*To Hoboken, N. J.*, from Camp Dix, Lieut. J. C. STAATS, Cincinnati.

### Oklahoma

*To San Francisco, Calif.*, from Fort Riley, Lieut. J. D. ENFIELD, Tulsa.

### Oregon

*To Fort Sheridan, Ill.*, from Fort Riley, Lieut. K. H. MARTZLOFF, Portland.
*To San Francisco, Calif.*, Lettermann General Hospital, from Camp Lee, Capt. C. E. SAUNDERS, Medford.

### Pennsylvania

*To Camp Abraham Eustis, Va.*, from Camp Lewis, Major H. TUCKER, Philadelphia.
*To Camp Meade, Md.*, from Camp Dix, Lieut.-Col. W. J. TAYLOR, Philadelphia.
*To Fort Sheridan, Ill.*, from Camp Lee, Capt. H. W. MORROW, Swissvale; from Fort Des Moines, Lieut. L. W. WRIGHT, Williamsport; from Fort Oglethorpe, Lieut. H. E. MASSY, Sharon.
*To Fort Warren, Mass.*, from Camp Dix, Lieut. G. M. BOGAR, Shamokin; from New Haven, Lieut. J. G. SILVERMAN, Philadelphia.
*To Hoboken, N. J.*, from Camp Upton, Lieut. M. S. KLECKNER, Allentown; from Mineola, Capt. H. A. GREAVES, Philadelphia.
*To Oteen, N. C.*, from Camp Gordon, Capt. I. H. ALEXANDER, Pittsburgh.
*To Philadelphia, Pa.*, from Camp Dix, Capt. W. B. CADWALADER, Philadelphia.
*To Plattsburg Barracks, N. Y.*, from Camp Dix, Major C. H. SMITH, Uniontown.
*To San Francisco, Calif.*, from Camp Custer, Lieut. J. A. LOGAN, Pittsburgh.
*To West Baden, Ind.*, from Camp Gordon, Major W. S. NEWCOMET, Philadelphia.

### Philippine Islands

*To San Francisco, Calif.*, for instruction, from Philippine Department, Major E. J. FARROW, Manila.

### South Carolina

*To San Francisco, Calif.*, from Camp Wadsworth, Major C. LEBARON.

### South Dakota

*To Fort Riley*, base hospital, from Fort McHenry, Capt. W. O. LEACH, Huron.

### Tennessee

*To Fort McPherson, Ga.*, from Camp Dix, Capt. A. W. HARRIS, Nashville.

### Texas

*To Camp Bowie, Texas, to examine the command* for nervous and mental disease, from Fort Logan, Lieut. D. C. BURKES, San Antonio.
*To Camp Custer, Mich.*, base hospital, from Camp MacArthur, Lieut. W. S. LORIMER, Handley.
*To Camp Gordon, Ga.*, base hospital, from Hot Springs, Lieut. J. S. TOMKIES, Dallas.
*To Camp Pike, Ark.*, base hospital, from Camp Lewis, Major J. C. ALEXANDER, Fort Worth.
*To Denver, Colo.*, from Vancouver Barracks, Lieut. C. R. GOWEN, Carlsbad.
*To Fort Logan H. Roots, Ark.*, from Camp Logan, Lieut. L. B. BIBB, Paris.
*To Fort Sam Houston, Texas*, from Camp Meade, Lieut. J. H. HAMILTON, Jonesboro. Base hospital, from Camp Dix, Capt. R. F. MILLER, Brenham; from Camp Travis, Lieut. H. O. BROWN.
*To Houston, Texas*, Ellington Field, from Austin, Lieut. D. H. BROOK, Travis.
*To San Diego, Calif.*, Rockwell Field, from Vancouver, Capt. E. J. BURNETT, San Antonio.
*To San Francisco, Calif.*, from Camp Abraham Eustis, Lieut. E. H. INMON, Tahoka.

### Utah

*To Camp Gordon, Ga.*, base hospital, from Fort McPherson, Lieut. H. SWANBERG, Salt Lake City.
*To Fort Douglas, Utah*, from Camp MacArthur, Capt. J. J. GALLIGAN, Salt Lake City.
*To Jefferson Barracks, Mo.*, from Camp Hancock, Lieut. G. W. GOINS, Toolle.

### Vermont

*To San Francisco, Calif.*, from Camp Abraham Eustis, Lieut. C. W. CUMMINGS.

### Virginia

*To Philadelphia, Pa.*, from Camp Pike, Lieut. J. O. BOYD, Roanoke.

### Washington

*To Fairfield, O.*, Wilbur Wright Field, from Vancouver Barracks, Lieut. E. I. G. REINARTZ.
*To report to the commanding general*, Western Department, from Camp Fremont, Major C. H. STEARNS, Fort Ward; from Camp Kearney, Major S. Q. ELMORE, Pasco.
*To San Francisco, Calif.*, from Camp Bowie, Capt. J. A. MAPES, Seattle. Letterman General Hospital, from Camp Kearney, Lieut. C. S. PASCOE, Tacoma.

### West Virginia

*To Camp Upton, N. Y.*, base hospital, from Camp Dix, Capt. W. L. VAN SANT, Hinton.

### Wisconsin

*To Fort Logan H. Roots, Ark.*, from Camp Logan, Lieut. E. L. SCHROEDER, Shawano.
*To Fort Porter, N. Y.*, from Camp Jackson, Capt. S. G. PAKE, Hayward.
*To Fort Sheridan, Ill.*, from Fort Riley, Lieut. P. J. MERTEN, Milwaukee.

## ORDERS TO OFFICERS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Surg. DANA E. ROBINSON, relieved at Providence, R. I., and from temporary duty at Chillicothe, Ohio, proceed to Evansville, Ind., and assume charge of the marine hospital at that place.

Surg. H. G. EBERT, relieved at the Columbia River Quarantine Station and from temporary duty at Manhattan, Kan., proceed to Chillicothe, Ohio, for duty in extracantonment sanitation.

Passed Asst. Surg. PAUL PREBLE, relieved at Cincinnati, Ohio, and at Portsmouth, N. H., proceed to Philadelphia, Pa., for duty in the Division of Health and Sanitation, Emergency Fleet Corporation.

Passed Asst. Surg. W. F. DRAPER, proceed to Richmond and other places in Virginia for conference with health authorities in the matter of demonstrations of rural sanitation.

Passed Asst. Surg. W. M. JONES, relieved at the Reedy Island Quarantine Station, proceed to the marine hospital, St. Louis, Mo.

Asst. Surg. R. R. SPENCER, relieved from temporary duty at St. Louis, Mo., on the arrival of P. A. Surg. W. M. JONES, proceed to Washington, D. C., for duty in industrial hygiene.

Asst. Surg. M. F. HARALSON, proceed to Alexandria and Lake Charles, La., and necessary points in Texas and Arkansas for inspection of work of extracantonment sanitation.

Asst. Surg. J. F. MAHONEY, relieved at Fort Worth, Texas, proceed to the New Orleans Quarantine Station for duty.

Acting Asst. Surg. W. S. RITENOUR, relieved at Anniston, Ala., proceed to Raleigh, N. C., for duty in extracantonment sanitation.

Acting Asst. Surg. M. H. WATTERS, proceed to Macon, Ga., for temporary duty in extracantonment sanitation.

Constr. Engr. N. V. PERRY, proceed to the Boston Quarantine Station for inspection of construction now being carried on.

Scien. Asst. J. P. ANDERSON, relieved at Florence, Ala., proceed to Pensacola, Fla., for duty in extracantonment sanitation.

Scien. Asst. G. S. BOTE, relieved at Fayettsville, N. C., report to Raleigh, N. C., for duty in extracantonment sanitation.

Scien. Asst. W. H. PRICE, proceed to Boston, Mass., for conference on health matters.

Scien. Asst. SAM SAUNDERS, relieved at Raleigh, N. C., report to the Hygienic Laboratory for duty in the study of vaccine.

Scien. Asst. W. C. VERDERY, relieved at Anniston, Ala., proceed to Fayetteville, N. C., for duty in extracantonment sanitation.

## *Medical News*

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

### ALABAMA

**Vaccination Urged.**—Dr. Judson D. Dowling, health officer of Birmingham and Jefferson County, issued a statement, January 28, urging persons who have not been vaccinated to secure vaccination immediately. A number of smallpox cases have recently been reported, and precautionary measures are necessary to avoid a repetition of the epidemic of last year.

**Personal.**—Dr. Haickel A. Elkourie, Birmingham, has been commissioned major, M. C., U. S. Army, and assigned to duty with the First Alabama Battalion, U. S. National Guard.——Dr. Charles A. Mohr, formerly city health officer of Mobile, has been elected full-time health officer of Mobile County. Under the new system an assistant health officer is provided and departments of vital statistics, laboratory, communicable diseases, epidemiology, meat and milk inspection, and chief sanitation inspector are established.

**Medical Society Objects to Changes.**—At a meeting of the Jackson County Medical Society held in Birmingham, January 27, a resolution was unanimously adopted opposing the bill recently introduced into the Alabama State Legislature which it is claimed tears down the present health service and replaces it by a system of questionable merit, averring that if the legislature will furnish proper support to the state health officer, the health and interests of the people of the state will be better conserved than by a radical change in the system.

**Public Health Activities Cease in Montgomery.**—Robert Olesen, P. A. Surg., U. S. P. H. S., has been directed by the Surgeon-General to arrange health matters in Montgomery so as to enable the municipality to take charge of the work when the service withdraws, which is expected to be about May 1. The health needs of Montgomery and Montgomery County as summarized by Dr. Olesen are:

1. A reorganized health department with a full time health officer in charge.
2. Continuation of antimalarial operations.
3. Maintenance of box and can sanitary system.
4. Continuation of government venereal clinic.
5. Educational efforts in behalf of public health through lectures, newspapers and pamphlets.
6. System of medical inspection in schools.
7. From two to four visiting nurses.
8. Thorough antifly campaign.
9. Prevention of smallpox and typhoid.
10. Cleanliness in establishments handling food and drink.
11. Safe milk supply through pasteurization.

### ARIZONA

**Personal.**—Dr. George P. Sampson, Winslow, has been appointed superintendent of health of Navajo County.——Dr. Charles A. Thomas, Tucson, has been elected a member of the board of directors of the Tucson National Bank.——Dr. Ricketts, Tucson, has been appointed a member of the board of regents of Arizona State University.

### CALIFORNIA

**Physician's Petition Denied.**—Judge George A. Sturtevant, San Francisco, January 14, it said to have denied the petition of Fischer R. Gordon, for the restoration of his license to practice medicine, which was revoked, January 25, by the state board of health after a hearing on the charge of having performed an illegal operation.

**Medical Bills Introduced.**—At a meeting of the California Society for Mental Hygiene held in San Francisco, February 2, passage of bills to establish a psychopathic hospital, to create a department of psychology at the State Penitentiary and to open the State Hospital for the treatment of mild cases of derangement on temporary commitment for observation and diagnosis, were urged.

**Personal.**—Dr. William F. Gates, Oroville, has been appointed county physician of Butte County and Dr. Lewis L. Thompson, Gridley, has been reappointed health officer of the county.——In the case of Dr. Mary M. Kroetz, San Francisco, whose license was revoked on a charge of attempting to procure an illegal operation, a writ of review has been granted by Judge Sturtevant.

**Physicians in Trouble.**—In connection with the mail fraud cases recently investigated by the federal grand jury at Los Angeles, which formed the basis for the return of six indictments involving violation of the postal laws, and alleged willingness to perform criminal operations, the following physicians are said to have been arrested: Drs. George W. Purcell, San Francisco; Augusta Stone, Los Angeles; Morris A. S. Franck, Los Angeles; George C. Somers, Los Angeles; Tom Shee Bin, Los Angeles, and Harry S. Walters, San Luis Obispo.

**Campaign Against Venereal Diseases.**—The machinery of the state board of health in its campaign against venereal diseases is now in operation in large parts of the state. Dr. Lewis Mickelson, San Francisco, head of the bureau of social hygiene of the state board of health is in charge of the work. Free clinics have already been established in ten of the principal cities of the state, and hospital clinics for venereal diseases will be equipped in many of the larger cities. Many of these clinics are open in the evening to accommodate persons employed during the day. Local health officers are empowered to isolate all persons deemed a menace to the public health.

**Colloquia to Be Resumed.**—The San Francisco Hospital Colloquia, both surgical and medical, have been resumed in the amphitheater at the San Francisco Hospital. The surgical colloquia commenced February 6 at 9 a. m., and the medical colloquia, February 7 at 9 a. m., and are to be continued thereafter weekly on Thursday and Friday mornings. These colloquia are open to all medical men and programs will be sent weekly, in advance, to all those who register with Dr. William Ophüls, dean of Stanford University Medical School, and pay a registration fee of $1 to cover clerical expenses; but whether registered or not, all physicians are welcome.

### CONNECTICUT

**Personal.**—Dr. Gould A. Shelton, Shelton, celebrated the fiftieth anniversary of his entrance into the medical profession, January 14, and on that day was the guest of honor at a dinner given by physicians of Derby, Ansonia, Shelton and Seymour.

**License Revoked.**—An official report states that, Sept. 13, 1918, the state department of health of Connecticut revoked the license of Dr. George A. Faber, Waterbury, on the ground that he had been convicted by the superior court of Connecticut.

**Elections.**—At the annual meeting of the New Haven Medical Association, Dr. Louis M. Gompertz was elected president; Dr. Robert E. Peck, vice president; Dr. Frank L. Phillips, recording secretary; Dr. Samuel J. Goldberg, financial secretary, and Dr. Frank H. Wheeler, treasurer.——At the annual meeting of the New Britain Medical Society, January 8, Dr. Edward J. Dray was elected president; Dr. Joseph Robinson, vice president, and Dr. Frederick J. Mann, secretary-treasurer.

## DISTRICT OF COLUMBIA

**Personal.**—Dr. Joseph A. Murphy has resumed his duties as chief medical and sanitary inspector of public schools.—— Dr. and Mrs. W. Earl Clark, who have been for nearly two years working in the American Ambulance, Neuilly, France, have returned home.

**Changes in Teaching Staff of Medical Department, Georgetown University.**—Dr. J. Thomas Kelley has been appointed professor of gynecology, succeeding Dr. Isaac S. Stone, who becomes professor emeritus of that chair. Dr. C. R. Dufour has been made professor emeritus of diseases of the eye and ear. Drs. J. M. Moser and John A. Foote have been appointed associate professors of pediatrics.

**New Assistant Health Officers for District of Columbia.**—The post of assistant health officer which has been vacant since the promotion of Dr. W. C. Fowler to succeed Dr. W. C. Woodward as health officer has been filled by the appointment of Dr. John Paul Frey, a graduate of George Washington University, 1910, and recently on the scientific staff of the National Vaccine and Antitoxine Institute.

## GEORGIA

**Typhoid Vaccine Ready.**—Dr. Marvin F. Haygood, La Grange, head of the department of epidemiology of the state board of health, announces that sufficient typhoid vaccine for 15,000 persons is now ready for shipment wherever wanted in the state.

**New Departments of State Board.**—Two new departments of the state board of health were inaugurated, January 1. A bureau of vital statistics in charge of Dr. W. A. Harris, formerly in charge of the vital statistics of Texas, and a division of epidemiology in charge of Dr. Marvin F. Haygood, La Grange.

**New Officers.**—Fulton County Medical Society at its annual meeting elected the following officers: president, Dr. Elmore C. Thrash; vice president, Dr. Walter B. Emery; secretary-treasurer, Dr. Elisha P. Merrit, reelected, and censor, Dr. Marion T. Benson. At the installation ceremonies, January 2, the society decided to appoint a committee to wait on the attorney-general and governor of the state and ask them to aid in ridding the state of unlicensed practitioners and quack physicians.

**Healthology.**—The first issue of "Healthology," the bulletin of the Georgia State Board of Health, appeared, January 15. It is edited by Ray C. Werner, assisted by Dr. Thomas F. Abercrombie, Atlanta, secretary of the state board of health. The chief articles in the first issue are "Result of Three Years of Active Public Health Administration in Floyd County," "Unfortunate Small Towns," "Checking Up on Tuberculosis" and "Physical Training and Examination of Schoolchildren."

## IDAHO

**Sterilization of Unfit.**—Dr. D'Orr Poynter, superintendent of the Idaho State Sanitarium, Nampa, in the first annual reports of the board of trustees of the institution, was that the Idaho Legislature pass a eugenic law authorizing the sterilization of mentally and socially unfit persons.

**New Officers.**—At the annual meeting of the Bonner County Medical Society the following officers were elected: president, Dr. Charles P. Stackhouse, Sandpoint; vice president, Dr. A. L. Salmon, Clark's Fork, and secretary-treasurer, Dr. Floyd G. Wendle, Sand Point.

## ILLINOIS

**Personal.**—Norval H. Pierce and Channing W. Barrett, majors, M. C., U. S. Army, both of Chicago, returned from abroad, February 17.——Dr. William Allen Pusey, Chicago, has been appointed consultant to the division of public hygiene of the state department of public health.——Dr. A. E. Owens, Princeton, has been elected president of the Bureau County Tuberculosis Association.——Dr. Rachelle S. Yarros, chairman of the subcouncil of the women's committee of the State Council of Defense, has been appointed supervisor of education for women.

## MARYLAND

**Hopkins Hospital Unit in the United States.**—Members of the Johns Hopkins Base Hospital Unit arrived at Hoboken, February 15, aboard the *Finland*. Twenty-seven officers and 135 enlisted men under command of Major Richard F. Kieffer of Hagerstown comprised the unit which is now quartered at Camp Merritt, N. J., awaiting orders.

**Addition to Frederick City Hospital.**—At a meeting of the managers of the City Hospital of Frederick, a committee was appointed to solicit funds for the erection of a building adjoining the hospital for the treatment of contagious diseases. The need of an isolated department was made manifest during the recent epidemic of influenza. Because of the danger to other patients, no influenza cases were received at the hospital.

**Library Building for the Johns Hopkins Hospital.**—Plans, subject to change, have been drawn for a proposed new building on the grounds of the Johns Hopkins Hospital which will house the medical library of the hospital and the surgical histories of patients who have been treated there, and will also contain an auditorium, with subsidiary rooms for religious and philanthropic work. The new library will be built in honor of Dr. Henry M. Hurd, Baltimore, who for many years was superintendent of the hospital. The structure, according to present ideas, will cost $100,000 and will have a frontage of 100 feet on Wolfe Street, directly in the rear of the Administration Building. It will have a depth of 142 feet in the hospital grounds, its front three stories high, the building being of red brick and limestone, in harmony with the other buildings. A donation of $50,000 and one of $30,000 toward the structure have been made and it is thought that the remainder of the sum will be forthcoming.

**Scarlet Fever on Increase.**—A warning against scarlet fever has been sounded by the health department of Baltimore city. During the past week, 72 new cases were reported, while but 11 cases were in the city a year ago. The spread of the disease is largely the fault of parents, who fail to summon physicians in time and do not properly observe their children when they complain of symptoms which point to the disease. The cases have been mild in character and while the case rate has been high, there was but one death from the disease in a total of 364 fatalities, from all causes. Bronchopneumonia led all diseases in the number of deaths, the total from this disease being 47. There were 43 deaths from influenza, 36 from lobar pneumonia, 40 from heart disease, 29 from Bright's disease, and 26 from diseases of early infancy. Other diseases were fatal in the following number of cases: tuberculosis, 35; cancer, 9; apoplexy, 22; epidemic meningitis, 1; typhoid fever, 1; whooping cough, 4; diphtheria, 4. Births for the week aggregated 296. Three hundred and sixty-five new cases of influenza were reported for the week ending February 7. Sixty-four new cases of bronchopneumonia and 35 new cases of lobar pneumonia were reported for the week.

**Personal.**—Dr. John T. Geraghty, Baltimore, who was operated on at the Johns Hopkins Hospital for appendicitis, is convalescing, and will shortly return to his home in Guilford.——Capt. Hugh W. Brent, Baltimore, of the University of Maryland Base Hospital Unit has arrived in New York on the *Stockholm*. Captain Brent has been overseas for about a year and was stationed for a time at the Queen's Hospital, London, later joining his unit in France.——Major J. Albert Chatard, Baltimore, has sailed from Brest for the United States. He enlisted in the Medical Corps, July 1, 1917, and sailed for France as chief medical officer of Base Hospital No. 78. His headquarters while overseas have been for the most part at Toul.——Capt. George L. Stickney, Twenty-Sixth Infantry of the First Division, has returned from France and after a short furlough, reported at Camp Dix, N. J., to await further orders. He first served with the British, and in the autumn of 1917 joined the American Expeditionary Forces at Toul.——Capt. G. Hampton Richards, mayor of Port Deposit and physician to Tome Institute, who has been in France with the British and American Expeditionary Forces for more than seventeen months, has returned and is now stationed at Camp Dix awaiting discharge.——Lieut. David Silberman, Baltimore, has returned from overseas where he served eight

months with the Eighty-Second Division.——Dr. J. Horton Kelly, Still Pond, has been taken to the Baltimore Hospital for enucleation of an eye, injured several months ago.

## MASSACHUSETTS

**Personal.**—Dr. Richard C. Cabot, Boston, has returned from abroad.——Dr. John W. Baird, professor of experiments and psychology in Clark University, Worcester, is reported to be critically ill in Johns Hopkins University hospital, Baltimore.

**Asks Appropriation for Study of Influenza.**—On recommendation of the trustees of the Boston City Hospital, the mayor has asked the city council for a special appropriation of $3,000 for the study and treatment of influenza; of this amount $1,000 is for equipment immediately needed and $300 a month for assistants and laboratory supplies.

**Advisory Health Staff Appointed.**—On suggestion of Health Commissioner Woodward, Mayor Peters has appointed the following medical advisory board for the health department of Boston: Drs. Richard M. Smith, John P. Treanor, Anna G. Richardson, Edward J. Denning, J. Dellinger Barney, David L. Edsall, James J. Minot, Harry Linenthal, Henry M. Pollock, Horace E. Bragdon and John Bapst Blake.

## MICHIGAN

**Personal.**—Dr. Mabel E. Elliott, Benton Harbor, has started for Asia Minor.——Dr. Ralph F. Miller has been appointed city physician of Adrian.

**Reorganization of State Board of Health Proposed.**—Franklin Moore, St. Clair, has introduced a bill into the state legislature providing for the reorganization of the state board of health by requiring the appointment of a state health commissioner of the state board of health, and an advisory council of five physicians who will have charge of the health program throughout the state. The bill provides that the health commissioner shall be appointed for a term of six years and shall receive a salary of $6,000 annually, that he must be a registered practitioner and must have been in active practice for five years. The chief deputy will receive a salary of $3,000, and at least three of the five members of the advisory council must be qualified physicians and will receive actual expenses and $10 a day while attending meetings of the state council.

## MISSOURI

**Annual Banquet of Society.**—At the annual banquet of the Buchanan County Medical Society at St. Louis, Dr. Daniel Morton acted as toastmaster; the retiring president gave his annual address and introduced the incoming president; an address was given by Rev. C. Hely Moloney, and returned medical officers of the society narrated their experiences in service.

**New Officers.**—At the annual meeting of the Green County Medical Society at Springfield, Dr. Joseph W. Love, for several years recording secretary, was elected president; Dr. Eugene C. Roseberry, vice president; Dr. Thomas O. Klingner, secretary (reelected for the tenth consecutive term), and Dr. Walter E. Handley, treasurer, all of Springfield.——William O. Owen, colonel, M. C., U. S. Army, director of the Army Medical Museum, delivered an address on "War Surgery," illustrated by moving pictures, before the St. Louis Medical Society, January 11.

## NEW YORK

**Hearing on Twomey Bill.**—A hearing on the Twomey bill, which would transfer the powers of the department of narcotic drug control to the state department of health, was held, February 11. It is understood that Governor Smith sent a special message to the senate public health committee urging that this be done.

**Personal.**—Dr. Jacob Goldberg, Buffalo, has been appointed a member of the state public health council.——Dr. Charles W. Pilgrim has been elected chairman of the section on mental hygiene and medical advice of the state conference of charities and corrections.——Dr. Frederick Peterson, New York City, has been renominated as superintendent of the Craig Colony for Epileptics, Sonyea.

**Association Changes Name.**—At the annual meeting of the Rochester Tuberculosis Committee, held February 6, the name of the organization was changed to the Rochester Tuberculosis Association. The following officers were elected: chairman, Dr. Howard L. Prince, member of the executive committee, Drs. Henry T. Williams and Joseph Roby. The address of the evening was delivered by Dr. Donald B. Armstrong, executive officer of the community health demonstration, Framingham, Mass.

**State Hospital Commission Makes Recommendations.**—The building of a new psychopathic hospital in New York City has been recommended to the legislature by the state hospital commission in its annual report. Enlargement of the Creedmoor branches of the Brooklyn Hospital are also recommended. The proposed psychopathic hospital for New York City is for preliminary treatment and research work in New York City and the need of such an institution is being stressed as most urgent. The report shows that during the year 1918 the state spent $10,484,000 for its insane, the per capita cost per diem was only 72 cents. A total of 45,136 were treated in thirteen civil hospitals, and 37,352 patients are now being cared for. Of those discharged 3,452 were benefited by treatment and 1,637 cured. A marked decrease of insanity from alcoholic causes was noted. At the close of the fiscal year fifty-two state hospital physicians were on military duty.

**Postgraduate Course in Infectious Diseases and Public Health.**—Arrangements have just been perfected by which a new course in infectious diseases and public health will be given under the joint direction of the Albany Medical College and the New York State Department of Health, to start, March 5, and to be open both to physicians and health officers, but with no connection with undergraduate instruction. The course will be under the general supervision of Dr. Charles C. Duryee, sanitary supervisor, state department of health, Albany, to whom all correspondence regarding the course should be addressed. The fee for the course is to be $25, payable in advance or in monthly instalments if desired. Those who have completed any of the various courses of instruction for health officers, either at Albany or elsewhere, are invited to attend the course at a nominal fee of $5. Attendance of one day weekly during March and April, and one and a half days during May and the first two weeks in June will be required. On completion of the course and a satisfactory examination a certificate will be issued.

### New York City

**Harvey Society Lecture.**—The fourth lecture of the Harvey Society series will be developed at the New York Academy of Medicine, March 1, at 8:30 p. m., by Dr. Frederick S. Lee, on "Industrial Fatigue."

**Personal.**—Dr. William E. Lippold, Brooklyn, is reported to be seriously ill with septicemia due to an operation wound.——Dr. Herman Seidler, Brooklyn, charged with driving his automobile across Manhattan Bridge at the rate of 30 miles an hour, is reported to have been fined $100 and sentenced to ten days' imprisonment in the city prison. This is his sixth conviction for this offense.——Dr. S. Dana Hubbard has been placed in charge of the division of industrial hygiene of the department of health.

**Free Clinic for Speech Defects.**—The first free medical clinic devoted solely to the treatment of defective voice and speech defects has been opened at 142 East Thirty-Seventh Street. This clinic has the following definite objects: To cure all forms of speech and voice disorders such as stuttering, lisping, stammering, nasality, cleft palate speech, etc.; to take care of defective teeth, mouth or jaw conditions when these are the cause of defective speech; to take care of nervous and mental conditions when they are causative or associated with defective speech and to reeducate patients to overcome their faulty voice or speech habits. The clinic will also maintain a central information bureau and clearing house for speech and voice disorders. One of the special features of the clinic are the evening classes. Dr. James Sounett Greene is the medical director.

## OHIO

**Profiteering Charges Inquiry.**—On invitation of the Cleveland Academy of Medicine, the state medical board agreed to conduct an investigation in Cleveland, beginning January 23, as many complaints of profiteering among physicians had been made to the acting health commissioner of Cleveland. The attorney-general, who was consulted in the matter, ruled that the board was without authority to make such examination.

**Continues Practice Although Unlicensed.**—Statement made by Levi W. Hunt, Toledo, a chiropractor, before a joint health committee of the general assembly at Columbus, February 6, apparently indicates that this individual's license to practice has been twice revoked, first on a charge of gross immorality, and second for objectionable advertising, but nevertheless he

continues to practice. The committee stated that investigators will be sent to Toledo and that Hunt will be prosecuted on a charge of practicing medicine without a license.

**Personal.**—Dr. Louis Kahn, health officer of Columbus, has resigned, his resignation to take effect, February 15.——Dr. Pinckney D. Shriner has been appointed president of the board of health of Columbus.——Drs. Wells Teachnor, Ira B. Hamblin and Oscar H. Sellenings have been appointed members of the board of health of Columbus.——Dr. Daniel B. Spitler, Hoytville, has been appointed coroner of Wood County.——Dr Franklin D. Sickles, Fredericktown, suffered amputation of his right leg at the knee, January 23.——Claud C. Craig, Urbana, has been appointed health department head at the work of the Victor Rubber Company, Springfield.

## PENNSYLVANIA

### Philadelphia

**Personal.**—Lieut. Penn-Gaskell Skillern, Jr., senior medical officer aboard the *U. S. S. Orizaba*, has been recommended the second time for devotion to service.——Dr. Jacob J. Schweller has been appointed clinical assistant physician, board of health.——Dr. Peter Moylan has been appointed a member of the state board of public charities to succeed Mrs. Elizabeth Thaw.

**Hospital to Open Soon.**—The Harriman Hospital, which was recently built and equipped at a cost of approximately $100,000, will be formally opened for reception of patients. The hospital will be conducted not only for the benefit of the employees of the Merchant Shipbuilding Corporation at Harriman, but for the treatment of cases from Bristol, Newtown, Langhorne, Hulmeville and other surrounding towns.

**Medico-Chirurgical Reopened.**—The University of Pennsylvania Graduate School of Medicine reopened the Medico-Chirurgical Hospital on Saturday, February 15, when Philadelphia physicians were invited to a private inspection of the plant. The hospital will be employed for general hospital work and has been equipped throughout with new medical and surgical instruments of the most recent development. There will be departments of medicine, surgery and obstetrics. Although it is to be used as a general hospital it is intended to become a center of instruction and clinical work for graduate students of the University of Pennsylvania. The department of medicine is in charge of Dr. James M. Anders; surgery, Dr. Francis A. Mantz, and obstetrics, Dr. William R. Nicholson. The hospital has more than 100 beds.

## TENNESSEE

**Personal.**—James L. Andrews has taken up his former duties as superintendent of the Memphis Health Department. ——Dr. Newman Taylor has resumed his work as secretary of the health department of Memphis, and Dr. Hiram B. Jacobson, who has been acting as secretary, has taken up again his work as inspector of schoolchildren.

**Hospital Notes.**—A contract was let, February 11, for additional improvements to the main building of the Baird-Dulaney Hospital, formerly the Hosmer Hospital, Dyersburg, to cost about $50,000. Application has been made and approved by the legislature of the state to increase the capital stock of the institution from $25,000 to $75,000.——The Nashville Protestant Hospital offered a deed of trust, January 20, to cover the loan of $30,000 secured for the purpose of paying for its real estate and for the equipment of a new ward, and for the improvement and extension of its hospital facilities.——Arrangements are being made for repair work on the Lincoln Memorial Hospital, Knoxville, which was damaged by fire, Dec. 6, 1918. The repairs will cost from $6,000 to $7,000.——At the annual meeting of the Baptist Memorial Hospital, Memphis, it was reported that during the year 5,787 patients had been cared for, 1,000 of whom were free patients. With the completion of the new wing the hospital will have a capacity of 500 patients. It is expected that the new wing will be ready for occupancy this month.——The Government Free Trachoma Hospital, Tazewell, which has been closed for several weeks, was reopened, January 14.——The McNabb Sanitarium for the Treatment of Noncontagious and Nonsurgical Diseases, Knoxville, has been opened, and will accommodate ten patients.

## TEXAS

**Personal.**—Dr. Beverly F. Young, San Antonio, was reelected superintendent of the Southwestern Insane Asylum, February 6.——Dr. Charles W. Goddard, Holland, has been appointed city health officer and president of the state board of health, to succeed Dr. William B. Collins, Austin.

**Nominations for State Board.**—Governor Hobby, January 29, sent the following nominations for the state board of medical inspectors: Dr. William C. Swain, Dallas County; Dr. Cabel O. Terrell, Eastland County; David Berry, Bexar County; S. L. Maye, Bell County; R. Y. Lacy, Camp County; D. W. Davis, Jefferson County; D. S. Harris, Harris County; Thomas J. Crowe, Dallas County; Horace C. Marrow, Travis County, and Marquis E. Daniel, Fannin County.

**Public Health Commission Appointed.**—The Texas Public Health Commission, appointed by the governor to investigate health conditions in Texas and report its findings, is composed of Dr. Otto C. Ahlers, Sherman, representing the Texas Town and City Planning Association, chairman; Mr. Charles Saville, Dallas, of the State Council of Defense, Committee on Sanitation and Medicine, vice chairman; Mr. D. E. Breed, Austin, representing the Texas Public Health Association, secretary; Dr. Platt W. Covington, Austin, representing the International Health Board; Dr. Selwyn P. Rice, Marlin, representing the State Medical Association of Texas; Mr. R. C. Bedicheck, Austin, representing the University of Texas, Extension Unit; Dr. W. A. Davis, Jr., Austin, representing the state board of health; Miss Anne Webb Blanton, Austin, representing the department of education; Dr. R. C. Derivaux, P. S. Surg., U. S. P. H. S., New Orleans; Mr. Elmer Scott, Dallas, representing the Texas Society Hygiene Association, and Mr. A. A. Long, representing the Texas League of Municipalities.

## WISCONSIN

**Elections.**—Outagamie County Medical Society at Appleton, January 28, president, Dr. Manly J. Sandborn, Appleton, and secretary-treasurer, Dr. George T. Hegner, Appleton.——Eau Claire County Medical Society, at Eau Claire, January 27, president, Dr. E. M. Seizer; vice president, Dr. William O. Seemann, Eau Claire; secretary, Dr. Roy E. Mitchell, Eau Claire.——Brown-Kewaunee County Medical Society, at Green Bay, January 21, president, Donne F. Gosin, Lieut., M. C., U. S. Army, Green Bay; vice president, Dr. Nobert M. Kersten, DePere, and secretary-treasurer, Dr. Edwin S. McNevins, Green Bay.

**Personal.**—Drs. Edward S. Hayes, Eau Claire, and William F. Whyte, Watertown, have been appointed members of the state board of health and vital statistics.——Dr. Valentine A. Gudex, Milwaukee, has been appointed deputy state health officer in charge of the fourth district, with headquarters at Eau Claire.——Dr. L. Rock Sleyster, superintendent of the State Hospital for the Criminal Insane, Waupun, has resigned to become superintendent of the Dr. Richard Dewey Sanitarium, Wauwatosa.——Dr. John M. Dodd has been reelected president of the Ashland General Hospital Association.—— In the damage suit for $20,000 brought by Clarence Van Wegner, New Holstein, against Dr. William G. Doern, Milwaukee, in which the jury returned a verdict for $3,600 for the plantiff, the verdict was set aside by Circuit Judge Gregory, January 22, who stated that the evidence submitted was sufficient to exonerate the physician.

## CANADA

**Influenza Kills Indians.**—According to the official figure of Dr. Orton I. Grain, Winnipeg, chief medical officer for the Federal Government of Indian affairs, approximately 750 deaths from influenza have occurred among the 14,179 Indians of Manitoba.

**University News.**—The medical building of the University of Toronto is to be enlarged by a new addition.——The Carnegie Corporation of New York has voted a grant of a half million dollars to Queen's University, Kingston, Ont. This grant is related to that in the will of Dr. James Douglas, New York, and is conditional on raising an additional $500,000.

**Pensions in Canada.**—A new arrangement has been established in connection with pensions to soldiers in Canada. District officers of the different military districts will now not only examine the soldier but will estimate his percentage of disability, so that the work will be completed by the medical board which examines the soldier. Final decision will, however, rest with the central office at Ottawa.

**Hospital News.**—A new undenominational hospital is to be built in connection with St. Michael's parish, Belleville, Ont. ——A new federal sanatorium for Ontario soldiers is to be established in that province by the Dominion government. The province will shortly select the site. It will be for

soldiers suffering with tuberculosis. Half the cost will be borne by the province of Ontario, and half by the Dominion. Three hundred thousand dollars is to be spent on the work.

**Personal.**—Lieut.-Col. William J. O. Malloch, who has just returned to Toronto from four years' service overseas, is ill with pneumonia. Dr. Malloch went over with the University of Toronto Base Hospital in 1915, was at Saloniki, and latterly has been chief surgeon at the Basingstoke Military Hospital.——Dr. William J. McCollum, Toronto, was taken ill on a holiday visit to Florida.——Lieut.-Col. Robert B. Wilson, roentgen-ray expert, Montreal, is at present doing military work in Toronto.——Lieut.-Col. Hardy of the Toronto Military Base Hospital has been appointed officer in command at the New Rosedale Military Hospital.

## GENERAL

**International Meeting of Obstetricians and Gynecologists.**—Preparations have already been begun for the international meeting of gynecologists and obstetricians which is to be held in New York City, Sept. 14, 15, 16 and 17, 1920. Dr. J. Riddle Goffe of New York is the president.

**Federation of Associations for Cripples.**—The *American Journal of Care for Cripples*, a special periodical in English on provision for the disabled, becomes a monthly with its January issue, according to announcement by its editor, Douglas C. McMurtrie. The journal is now entering on its eighth volume. This periodical will contain in the future the studies, translations, and abstracts produced by the research department of the Red Cross Institute for Crippled and Disabled Men, which material has hitherto appeared in a special series of publications. The Journal also continues as the official organ of the Federation of Associations for Cripples.

**W. W. Palmer Succeeds J. H. Long on the Council on Pharmacy and Chemistry.**—At the recent meeting of the board of trustees, C. L. Alsberg, chief of the Bureau of Chemistry, U. S. Department of Agriculture; John Howland, professor of pediatrics, Johns Hopkins University Department of Medicine, and Henry Kraemer, professor of pharmacognosy, University of Michigan, College of Pharmacy, were reappointed to serve on the Council on Pharmacy and Chemistry for a further period of five years. The trustees appointed W. W. Palmer, associate professor of medicine at the College of Physicians and Surgeons of Columbia University, to fill the vacancy caused by the death of Prof. J. H. Long, who had been a member of the council since its organization. Walter Walker Palmer took his B.S. at Amherst in 1905; received his M.D. from Harvard Medical School in 1910; was a Fellow of Medicine at Harvard from 1915 to 1916, serving under Dr. David L. Edsall, former member of the Council on Pharmacy and Chemistry; was assistant professor of medicine at Cornell University Medical College in 1917, and associate professor of medicine at the College of Physicians and Surgeons of Columbia University in 1918. Dr. Palmer has also been actively engaged in various biologic researches at the Rockefeller Institute. Among his publications are: Significance of Urinary Acidity in Nephritis, Paroxysmal Edema, Absorption of Protein and Fat After Resection of Half the Small Intestine, Basal Metabolism and Creatinine Elimination, and Factors of Acid Secretion. He and co-workers at the Rockefeller Institute have also published a large number of articles on acidosis and its relation to diabetes. "The Colormetric Determination of Hemoglobin" by Palmer is officially recognized for use in U. S. Army Hospital Laboratories.

## FOREIGN

**Vaccination in Africa.**—A Spanish exchange states that the Sultan of Tangier has decreed that no one can enter the French zone without presentation of a vaccination certificate.

**Deaths in the Profession Abroad.**—Dr. **H. G. Plimmer**, professor of comparative pathology in the Imperial College of Science, London, author of numerous works on tropical diseases, microscopic findings, Plimmer's bodies, etc., aged 61. ——Dr. **I. C. L. Holm**, the leading spirit in the development of the sanatorium system in Norway, aged 73.

**Tuberculosis Among Belgian Refugees in the Netherlands.**—The *Nederlandsch Tijdschrift* relates that among 23,791 Belgians living scattered in 320 different communities about 3 per thousand are tuberculous. In the refugee camps, however, the proportion is much higher, up to 11.8 per thousand among the 14,844 refugees crowded in four refugee camps. Only in one of the camps had hospital provision been made for them at that time.

**Work of Medical Students During the Epidemic.**—The *Siglo Medico* of Madrid relates that the municipal authorities of Ciudad Real recently distributed diplomas to the medical students of the town expressing the grateful appreciation of the public for the assistance they rendered during the epidemic of influenza. The ceremony was presided over by the governor, and at its close a banquet was tendered the students by the Junta de Sanidad.

**Scarcity of Drugs in Norway.**—The *Norsk Magazin for Lægevidenskaben* recently published an official communication to the effect that owing to the scarcity of hypophosphis calcicus, the syrupus sacchari is to be used in its place in compounding the syrupus pectoralis of the Pharmacopeia. Extreme economy in the use of camphor is also ordered, reserving it for strictly internal uses. A further order specifies that substances must not be used in sterilizing rooms which destroy the paint, as the supply of linseed oil is so low that it must be saved for strictly necessary painting, and existing paint must be spared from damage. It is stated that paint can be washed without harm, with proper care, and effectually sterilized by using formaldehyd-green soap, cresol soap or phenol-green soap, for the soap suds. Crude potassium permanganate is not to be obtained in the market, and the purified costs 20 crowns per kilo, a prohibitive price for its use in sterilization of rooms.

**The New Premier of Spain a Physician and Medical Editor.**—The profession in Spain is rejoicing over the appointment of Dr. Amalio Gimeno y Cabañas to be ministro de la Gobernacion, the premier of the realm. He heads the large editorial staff of the *Siglo Medico* of which Cortezo—who has also been in the cabinet—is director. Dr. Gimeno is professor of general pathology at the University of Madrid, and has long been a prominent figure in contemporaneous medical science in Spain. During his vacations he found relaxation in assuming charge of a spa, as director of a *balneario*. The choice of Dr. Gimeno is hailed by the profession in Spain as an augury of better things in public health matters and as an honor to the profession. No physician has been appointed premier in Spain for a long time, not since the days of Dr. N. M. Rivero. In a recent interview, Dr. Gimeno stated that he had already drawn up an outline for certain measures to hasten the time when Spain will rank in public health matters with the peoples now taking the lead in progress. The measures outlined for presentation to the cabinet include motherhood allowances, pure food legislation, hygiene for factories and shops, and protection for women and children. In talking with the king, he dropped the rôle of premier and, speaking only as a professor for forty years, urged the king to start a movement for a better equipped building for the medical school, to bring its quarters up to date and offer attractions to foreign students.

**Medical Research in Australia.**—The Walter and Eliza Hall Institute of Research in Pathology and Medicine has been established in Melbourne in connection with the Melbourne Hospital, through the generosity of the trustees of the Walter and Eliza Hall Fund. The institute is controlled by a board representing the trustees, the University of Melbourne and the Melbourne Hospital. A spacious building, including a basement and three stories, has been erected at a cost of over $60,000 in immediate connection with the pathologic department of the hospital. The hospital itself has recently been entirely rebuilt and now contains 350 beds. Applications for the offices of director and of first assistant of the institute are being invited through the agent-general for Victoria, Melbourne Place, Strand, London, from whom full information may be obtained. The director has the management of the institution; devotes his whole time to this work, is responsible for keeping research as the primary object of the institution, will give all assistance to the medical staff and other officers of the Melbourne Hospital in postmortem work and clinical pathology, will make arrangements for clinical instruction and laboratory instruction to medical students in postgraduate work, and provide or maintain the comforts of patients or others residing in, or who use the hospital. His term of service is five years and he is eligible for reappointment. His salary is $5,000 a year, payable monthly, and in addition, the board will procure an endowment insurance on the director's life, to be payable at the age of 60 or predecease, the annual premium for this insurance being $375. If the director comes from America, $625 will be allowed for travel expenses. Applicants should be between the ages of 25 and 35. All applications must be accompanied by original or certified copies of testimonials, schedule of experience, list of research work and photograph.

It is expected that the director will take duty, Oct. 1, 1919. The first assistant director shall be not over 35 years of age, and will be expected to devote his entire time to the work of the institute as directed by the board and under the instruction of the director. He will have the management of the institution in the absence of the director, will give such assistance as may be prescribed to the medical staff or other officers of the Melbourne Hospital in postmortem work and clinical pathology and bacteriology, and will take such part as may be prescribed in the instruction of medical students in laboratory work and in postgraduate instruction. He holds office for five years and is eligible for reappointment. His salary will be $3,000 a year, payable monthly.

## SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

**Colombian Medical Congress.**—The *Repertorio* announces that the Fourth National Medical Congress will convene at Tunja in August. The registration fee is $5 m/n which is to be forwarded to the secretary-treasurer, Dr. José del C. Cardenas, Bogotá, Colombia.

## CORRECTION

**Texas Appropriation.**—The item under Texas News in THE JOURNAL of January 25, headed "Deficiency Appropriation for Tuberculosis Colony" was incorrect in that the appropriation of $20,000 was not allowed as a deficiency, but was added to the general appropriation bill now before the legislature and has been reported favorably but not yet passed. It is believed, however, that the bill will pass. This appropriation is to provide for furniture for two new dormitories with a capacity of 144 patients, making a total capacity of the institution of 325.

## PARIS LETTER

PARIS, Jan. 23, 1919.

### Gas Gangrene

At a recent meeting of the Académie des Sciences, Dr. Charles Richet, professor of physiology in the Paris medical faculty, reported the results from the use of multivalent serum in the treatment of gas gangrene. This serum was obtained from horses that had been injected with the cultures of sixteen micro-organisms most commonly found in cases of gas gangrene. Some of these horses were also immunized against tetanus.

As a result of these injections, the general and local conditions of these patients improved rapidly; the pulse improved, urine secretion was increased, the characteristic facies disappeared, and the gas which had penetrated the tissues, and sometimes entered the thorax and abdomen, sometimes was absorbed in a few hours. Eighty-one cases were treated in this way, with sixty-nine cures and twelve deaths—the percentage of cures being 85.19. Four of the fatalities occurred among men who had survived the gas gangrene but died of some other affection, such as, tetanus, bronchopneumonia with purulent pleurisy, double pneumonia, etc. Therefore, the actual mortality from gas gangrene was only eight, a death rate of 9.87 per cent. Some of these patients were at the point of death at the time the serum was injected. A certain number, whose condition was recognized as being desperate, were cured by the serum injections. In several cases, where amputation or disarticulation was not done because of the enfeebled state of the patient or the extent of the gangrene, the limb was saved to the patient. The preventive and curative use of this serum is regarded as being an important aid to the surgical treatment of wounds infected by the bacteria ordinarily found in gas gangrene.

### Compulsory Notification of Tuberculosis

The Conseil des ministres has authorized its president, the minister of the interior and the minister of finance, to present to the chamber of deputies a bill providing for the compulsory notification of open cases of pulmonary tuberculosis, as proposed by Dr. Louis Mourier, undersecretary of state for the Service de Santé militaire. This bill provides also for the free treatment and hospitalization of these persons and pecuniary support for the patient's family. Dr. Mourier called attention to the fact that measures of this kind have been in force during the war for the care of tuberculous soldiers. About 55,000 tuberculous soldiers have been cared for in the hospitals and dispensaries, and the regulations now in force must be extended because there are at this time about 500,000 tuberculous persons in France. It is estimated that it will cost 84 millions of francs to provide the needed establishments, and that the annual expenditure will amount to 100 millions ($20,000,000).

### A Prehistoric Pathologic Specimen

Dr. Marcel Baudouin recently exhibited to the Académie de médecine a pathologic specimen that is probably about 12,000 years old. The specimen is an inferior maxilla of the neolithic period, which shows positive evidence of a fracture which healed spontaneously, and of a curious hypertrophy of the posterior surface of the bone. This bone was excavated during the recent work done on military defenses in the outskirts of Paris. It was buried under a dolmen.

### Public Health and the Sanctity of the Home

Should the sanctity of the home preclude carrying out certain public health measures? The mayor of Toulouse informed the public that in view of the establishment of the "casier sanitaire des maisons," the sanitary record of the building, the employees of the Bureau d'hygiène would visit the houses to gather the data. All persons who refuse these agents admission lay themselves liable to prosecution. Several householders regarded this edict as a violation of the sanctity of the home, and have appealed to the Conseil d'Etat. That body decided, however, that the law gives the mayor the right to enter a home for health reasons as set forth in the law of Feb. 15, 1902, regarding the protection of the public health. The exercise of these powers is practically impossible in many cases without an examination of the premises. The appeal of the proprietors was denied.

### Instruments for Physicians of Devastated Regions

The Conseil général of the Association des médecins de France unanimously adopted a resolution asking that the undersecretary of state for the Service de Santé militaire consider the transfer or assignment and sale to the physicians of the devastated regions, whether in service or not, of the instruments and apparatus made otherwise useless by the demobilization of the various sanitary formations and supply depots. In the case of physicians entitled to war damages (*dommages de guerre*) the price of the instruments will be deducted from the sums due the purchaser.

### Child Welfare Work

A conference held at Lyon, attended by Dr. Lucas, director of the children's bureau of the American Red Cross, and a French committee consisting of physicians and laywomen interested in child welfare in Lyons, decided to transfer the work of the children's bureau to the French committee. The Lyons societies which have been interested more especially in children's welfare have amalgamated, in a way, so as to collaborate with the committee which succeeds the American bureau. The Holtzmann hospital will also be in charge of the Comité français.

### Deaths

Dr. Paul Fabre of Commentry, département de l'Allier, died recently, aged 73. He had been a national corresponding member of the Académie de médecine since 1889, and a corresponding member of the Académie royale de médecine de Belgique. He was best known for his work in industrial hygiene. He was especially interested in the health of the miners, the sanitation of collieries and the effect of underground work on miners.

Dr. Lesieur, professor of pathology and general therapeutics in the Lyons medical faculty, died from an attack of influenza contracted while on furlough.

Dr. Albert Weil, chief of the electroradiologic laboratories of the Trousseau hospital, died in Paris from pulmonary congestion. He was the author of numerous works on therapeutics, among them a textbook, Eléments de radiologie, which was recently awarded the Itard prize.

Dr. Lucien Butte, president of the Société de médecine de Paris and of the Association centrale des médecins de France, assistant physician-in-chief to the prefecture of police, died, aged 63 years.

### Personal

Dr. Georges Clemenceau was unanimously elected honorary president of the Société de médecine de Paris.

Medical Inspector-General Sieur has been made president of the Comité consultatif de santé de l'armée, replacing Dr. Février. . . . Dr. Astruc, *agrégé*, adjunct professor in the Ecole supérieure de pharmacie of Montpellier, has been made professor of galenical and industrial pharmacy, a new chair.

### Association of Parisian Medical Students

In response to common demand and in order to afford their comrades in arms an opportunity of taking up intensively

their medical studies, the medical section of the Association générale des étudiants de Paris has recently decided to open an information office. In this connection the association has endorsed the prewar program (including didactic and clinical conferences, notices of vacancies and aid in securing reinstatement in former positions), and the furtherance, with the authorities, of compensation claims. Some of these appeals have already been granted, in that the mobilized students have been allowed to return to their universities and have been permitted to resume their former studies with full credit.

### American Physicians Receive Legion of Honor Decoration

At the suggestion of M. André Tardieu, commissioner general aux affaires de guerre franco-américaines, the following named Americans have been made officers of the Legion of Honor: Dr. Livingston Farrand, president of the University of Colorado and president of Rockefeller Tuberculosis Commission; Dr. Simon Flexner, professor of pathology in the Rockefeller Institute. Dr. Selskar Gunn and Dr. Alexander Miller, assistant to Dr. Farrand, have been made chevaliers of the Legion of Honor.

## LONDON LETTER

LONDON, Jan. 29, 1919.

### The Interallied Fellowship of Medicine

The objects of the Interallied Fellowship of Medicine (described in previous letters to THE JOURNAL), as stated by the honorary secretary, Sir St. Clair Thomson, are: 1. The coordination of all the resources of medical interest throughout this country so as to make them readily available for demonstration and investigation. 2. Initiation of schemes of scientific entertainment. These would embrace the arranging of facilities for visits to, or courses of study in, the various clinics, laboratories, museums and other medical institutions; the regular attendance on any one particular service or course of lectures or demonstration, and in addition the preparation of specially arranged addresses, demonstrations or scientific visits. 3. Later on the fellowship would be actively helpful in collecting and distributing information and in facilitating visits to overseas medical schools, meetings and congresses, and in being a center through which the temporary occupation of professional chairs or exchange of professorships might be arranged. 4. The promotion of personal friendly intercourse between the members of the profession in this country and their brethren from overseas. To promote these objects a center has already been granted by the Royal Society of Medicine, where arrangements will be made to collect, file and circulate information on all matters of medical interest. Rooms will be available for conferences, discussions, demonstrations or exhibitions. In fact, the fellowship of medicine will act as a sort of central Cook's tourist office for travelers in the medical world. The primary object of this association is not to arrange postgraduate study: this is the care of a separate association, also under the egis of Sir William Osler, with which there will be the most friendly cooperation. Postgraduates are particularly desirous of continuous and intensive training in one or more circumscribed departments of medicine. But the fellowship caters for all visitors, not only those seeking postgraduate classes, but also those wishing to study our medical history, institutions and organizations, hospitals, infirmaries, dispensaries, asylums, fever hospitals, lying-in institutions, nursing homes and sanatoriums, or our state and municipal hygienic arrangements. It is proposed to help them to hear and join in the scientific medical life of this country and provide them with entertainments of medical interest. It will help them to see any one particular man operate or hear any special clinical demonstration; to work in any laboratory or study or in any library, or to visit any asylum or investigate any system of drainage.

### Liquid Eggs from China

The report by Dr. A. W. J. MacFadden on the work of inspectors of food during 1917-1918, which has been issued by the Local Government Board, deals with the importation from China of eggs in liquid form. Before the war the bulk of this material went to Germany, and the small quantities brought here were used for industrial purposes and, to a limited extent, for confectionery. After the outbreak of war, large consignments arrived in this country as cargoes in prize ships, and since then large quantities have been imported in the ordinary course of trade. These products, Dr. MacFadden states, occasionally arrive in the form of whole egg mixed, but usually the egg yolk and egg albumin are sent separately. In the latter case the albumin may be sent in a fluid state with preservative added or in a crystalline dried form. Samples of yolk were found to contain boric acid in amounts varying from 1.35 to 2.08 per cent. Sometimes common salt up to 10 per cent. is used, with a smaller amount of boric acid. Until comparatively recently the use of this liquid egg for food purposes was confined to the manufacture of cakes, biscuits, etc. The amount of boric acid in the finished food as eaten is reduced to about 5 grains a pound. During the latter part of 1917, however, liquid egg began to appear on the market in large quantities packed for domestic use in small tins and jars. In this form the product was available for use in milk puddings, pancakes, etc., and when used for such purposes, the amount of boric acid consumed by the individual would be considerable. There is also good reason to believe that large quantities have for some time been used in restaurants for similar purposes. The employment of these boricized products for domestic and restaurant use is open to serious objection. In the case of the smaller receptacles sold at retail, some of the packers make a statement to the effect that the contents should not be used for omelets or scrambled eggs; but even this small measure of protection is not available to persons eating at hotels, restaurants and similar places. Dr. MacFadden suggests that, as the importation of egg products from abroad will necessarily increase in the future, it would be advantageous, from the points of view both of the health of the consumer and of economy in shipping space, if arrangements could be made for the product to be shipped as dried egg instead of in a liquid form. Dried egg imports have proved very successful, and if the eggs are prepared and packed properly in this form, they are a wholesome and useful foodstuff.

### A National Register of Population

At a meeting of the National Birth-Rate Reconstruction Commission, promoted by the National Council of Public Morals, the need of a national register of population was put forward by Dr. T. H. C. Stevenson for Sir Bernard Mallet, the registrar-general. Dr. Stevenson said that there were in this country a large number of partial registers of the population, but the census remained the only complete register, and that, being revised only once in ten years, was of use only for statistical purposes. The partial registers included at present the national register, the food register, electoral registers, school attendance registers, sickness and unemployment insurance registers, and many others. All these were, generally speaking, independently compiled and maintained, the information obtained by one not being made available for the purposes of the others. The proposal favored by the registrar-general was that a single master register should be set up which would include every man, woman and child in the country. It would contain certain particulars of general interest about each, such as address, name, sex, date and place of birth, and occupation, with information as to marriage and children. But no single register could possibly contain all the information that might be wanted for its own special purposes by any one of the multifarious records referred to. The proposal was therefore to link each of these up with the general register as part of a single coordinated system, providing for the communication to each of the special registers of the information of common interest collected by the general register, and leaving each of them to amplify this according to their own requirements. With this object the general register might record, in code form, on which of the special registers the person was borne; and information of removals, etc., would be communicated to these as received. The general register alone should have complete canvassing organization, none of the others requiring to start de novo, but merely to fill in gaps in their knowledge concerning certain individuals. As the register would deal with many millions of names, it would have to be maintained in local sections through the country; but it would be necessary to maintain a single central index to all the local registers. Births, deaths and removals would all be reported to this index. The central organization should coordinate and control the local general registers. Under the scheme indicated, eugenists would in time be provided with pedigree records of the population comparable in accuracy with those already provided for prize live stock; and the field for research could be indefinitely extended by tracing the records of the progeny of various unions.

### Proposed Drastic Reform in the Lunacy Laws

The present lunacy laws were passed with little regard for the treatment of incipient insanity. Under existing con-

ditions, many patients, owing to the objection of their relatives to their being certified as insane, are kept in their homes so long that when ultimately they are sent to an asylum their cure, which might have been effected by early treatment, is hopeless. The committee appointed by the Conference of Visiting Committees of the Asylums has prepared a report stating that the present lunacy acts are effete and that drastic amendment is of urgent national importance. They recommend that the words "pauper," "lunacy," "lunatic" and "asylum" should be deleted from the lunacy laws; that the establishment by local authorities of special mental hospitals for the treatment of either incipient or actual mental disease should be encouraged; that such hospitals should comprise inpatient and outpatient departments; that no patient of such a hospital should be under certification until the medical director of the hospital considers it necessary that the patient should be transferred to an institution such as is now known as an asylum; that special mental hospitals should not be subject to the supervision of the board of control (the body appointed by the government to control the treatment of lunatics), and that no report should be made to that board concerning any patient under treatment therein; that in connection with every medical school a special mental hospital (psychiatric clinic) should be established, in which proper facilities should be provided for research, teaching and training; that every medical officer appointed to any institution for the care and treatment of the mentally afflicted should be required, within two years from his appointment, to hold a recognized diploma showing that he is specially skilled in the science of the cure of mental ailments; that voluntary boarders should be admitted to the institutions now known as public asylums, and that the lunacy acts and the mental deficiency act should be consolidated, and, with the rules and regulations made under those acts, thoroughly revised.

### Scientific Meeting of the British Medical Association

During the four years of the war, the scientific meetings of the British Medical Association were suspended and only the political meetings of the representatives were held. The last ordinary annual general meeting was held in July, 1914, and it had been arranged to hold the following meeting at Cambridge, under the presidency of Sir Clifford Allbutt. This meeting was abandoned, because of the strain on the profession owing to the war. It has been found impossible for Cambridge to arrange to receive the association this year, but it hopes to do so in 1920. It was therefore suggested that a special meeting might be arranged this year for the discussion of clinical and scientific subjects, but on a smaller scale than usual. At a meeting, the proposal was laid before Lieut.-Gen. Sir John Goodwin, the director general of the army medical service, and representatives of the medical services of the British navy and air force and of the medical services of the Dominions and of the United States. In opening the proceedings, Sir Clifford Allbutt said that the time had come to relay old tracks and make plans for reconstruction, but that it had not been considered advisable to hold a full-dress meeting this year. A short scientific meeting could be held this year in London without any attempt at large organization or elaborate entertaining. Dr. J. A. MacDonald, chairman of the council, said that the main object would be to bring together workers from at home, the Dominions and the United States to garner knowledge and ideas from those who had studied war medicine and surgery. Lieut.-Gen. Sir John Goodwin thought that such a congress was most desirable. Much scientific work of the highest value had been done during the war, and the results were now being analyzed. It would be an immense advantage that they should be examined. All possible facilities would be given to assemble research workers from the forces overseas. Col. A. M. Whaley, United States liaison medical officer with the War Office, welcomed the idea on behalf of the American medical officers serving in Europe. Approval was also expressed by representatives of the Canadian, Australian and New Zealand medical service. All agreed that the meeting would be valuable in crystallizing the knowledge gained during the war. In view of the approaching departure of many medical officers, it was felt that the meeting should be held as soon as possible. It was provisionally agreed that the meeting should be held early in April and should last two or three days.

### Industrial Fatigue

A research board has been appointed by the Department of Scientific and Industrial Research and the Medical Research Committee jointly to consider and investigate the relations of hours of labor and of other conditions of employment, including methods of work, to the production of fatigue, having regard both to industrial efficiency and to the preservation of health among the workers. The duty of the board will be to initiate, organize, and promote by research, grants or otherwise, investigations in different industries with a view to finding the most favorable hours of labor, spells of work, rest pauses and other conditions applicable to the various processes according to the nature of the work and its demands on the worker. For these investigations the board looks forward to receiving the help of employers and workmen in the industries which are studied, and in appropriate cases representatives of both will be invited to serve as temporary members of the board. The board includes Dr. C. S. Sherrington, F.R.S., professor of physiology, University of Oxford; Sir Walter Fletcher, F.R.S., secretary, Medical Research Committee; Dr. T. M. Legge, medical inspector of factories; Col. C. S. Myers, F.R.S., director of the Psychological Laboratory, Cambridge, and some directors of large firms.

### Standard Illumination and Vision Testing

The Council of British Ophthalmologists appointed a committee consisting of eminent ophthalmologists and physicists to determine standards of illumination for Snellen's test types for distant vision. The committee has now issued an important report. The effect on visual acuity of variations in the illumination of test objects has been the subject of a series of careful investigations for many years. Two chief facts emerge: 1. There is a rapid rise in acuity as the illumination is increased from zero up to about two "foot candles" (one foot candle is the illumination received from a source of one candle power falling perpendicularly on a surface at a distance of one foot from the source). 2. Above three foot candles there is scarcely any appreciable rise in acuity. The results obtained by different observers are not entirely concordant, the discrepancies being attributable to variations in the test object: contrast, size of pupil, etc. For clinical purposes it appears to be sufficiently accurate to regard the results obtained with an illumination of three foot candles or more as valid and comparable under the ordinary conditions of clinical testing. But this minimum is by no means always insured in testing for military or other public services. Apart from the fact that the test types often do not conform to Snellen's criteria, they are frequently dirty, thus diminishing contrast, are varnished, thus giving rise to disturbing direct reflection of light, and are viewed under great variations of daylight, in rooms often ill suited for the purpose. It is possible to lay down precise and simple rules for the efficient illumination of test types. Two ordinary 20 watt tungsten lamps with straight filaments are fixed vertically 15 inches in front of the plane of the test card, one on each side at a horizontal distance of 12 inches from the vertical plane normal to and bisecting the card. One lamp is placed higher than the other, one being opposite the junction of the upper and middle thirds of the card, the other opposite the junction of the middle and lower thirds. Opaque, nonreflecting screens are fitted, so as to prevent direct light from the lamps reaching the candidate's eye. With new lamps the illumination on the test types will be of the order of ten foot candles. The ordinary variations of current, deterioration of lamps, and the darkening of the test card with age will not reduce the brightness of the test card so illuminated to a value less than that of a perfectly white surface receiving an illumination of three foot candles.

## Marriages

EDWARD W. NORTHCUTT, Lieut., M. C., U. S. Army, Torrington, Ky., on duty with the American Expeditionary Forces in France, to Miss Mariet Struts of Marinette, Wis., at the Base Hospital, Venes, France, Dec. 20, 1918.

HARRY B. BURNE, Lieut., M. C., U. S. N. R. F., on duty at the Naval Training Station, Great Lakes, Ill., to Miss Ethel Smith, of Iowa City, Ia., at Waukegan, Ill., February 7.

WALTER ARMSTRONG NOBLE, Lieut., M. C., U. S. Army, St. Mary's, O., to Miss Mildred L. Conner, of Berlin Heights, O., February 4.

NORMAN EDWARD DITMAN, New York City, to Miss Grace E. Cumnock of Lowell, Mass., February 22.

OTTO EMIL PRELLWITZ, to Miss Wilhelmina Louise Klappert, both of New York City, Dec. 21, 1918.

## Deaths

**David Alexander Hodghead** ⊕ San Francisco; Bellevue Hospital Medical College, 1884; aged 61; dean and professor of obstetrics and diseases of children in the College of Physicians and Surgeons, San Francisco; formerly president and secretary of the San Francisco Clinical Society, and secretary of the Medical Society of the State of California; editor of the Pacific Medical Journal from 1889 to 1892 and from 1898 to 1904; formerly superintendent of the City and County Hospital of San Francisco; died in San Francisco, February 5, from pneumonia following influenza.

**John Ravenswood Hicks** ⊕ **Major, M. C., U. S. Army,** Staten Island, N. Y.; University of Maryland, Baltimore, 1893; aged 46; ophthalmic surgeon to St. Vincent's Hospital of the Bureau of Richmond, New Brighton; acting assistant surgeon U. S. Army from 1902 to 1906, with service in the Philippine Islands; on duty with the 302d Tank Corps, American Expeditionary Forces; died in France, January 3.

**William Stanton Gleason** ⊕ Newburgh, N. Y.; New York University, New York City, 1886; aged 58; a specialist on internal medicine; president of the Medical Society of the State of New York in 1915; a Fellow of the New York Academy of Medicine; senior attending physician to St. Luke's Hospital, and consulting physician to the Highland Hospital; died at his home, February 3, from nephritis.

**George Pierce,** Upper Montclair, N. J.; Johns Hopkins Medical School, Baltimore, 1907; aged 35; at one time a member of the Medical Society of New Jersey and instructor in urology in Johns Hopkins Hospital, Baltimore; a research chemist for the Colgate manufacturing plant, Jersey City, N. J.; died at his home, February 4, from injuries received in an explosion of chemicals, the day before.

**Charles Hubart Lovewell,** Chicago; University of Michigan, Ann Arbor, 1871; aged 70; a member of the Illinois State Medical Society; a pioneer practitioner of Englewood, where he located in 1875; for many years local surgeon of the Lake Shore and Rock Island System; a member of the town of Lake school board from 1888 to 1890; died at his home, February 9, from cerebral hemorrhage.

**James H. Wilson** ⊕ Dover, Del.; University of Pennsylvania, Philadelphia, 1867; aged 76; secretary of the Medical Society of Delaware, Examining Board; president of the State Medical Society for several years; local surgeon for the Pennsylvania System since 1874; a member of the board of trustees of the Delaware State Hospital, Farnhurst; died at his home, February 1.

**William Shorter Bull** ⊕ **Lieut., M. C., U. S. Army,** Irvington, N. J.; New York Homeopathic Medical College, New York City, 1914; aged 32; on duty with the 114th Infantry, Twenty-Ninth Division, American Expeditionary Force; while crossing the River Meuse, France, on a temporary bridge under fire, Oct. 11, 1918, was instantly killed by the explosion of a shell.

**Samuel S. Washburn,** Lafayette, Ind.; University of Louisville, Ky., 1861; aged 79; a member of the Indiana State Medical Association; a veteran of the Civil War, in which he served as assistant surgeon of the Sixteenth Indiana Volunteer Infantry; for eighteen years a member of the Indiana Council; a member of the City Board of Health; died at his home, February 4.

**Alba Gustavus Walker** ⊕ **Capt., M. C., U. S. Army,** Houlton, Me.; College of Physicians and Surgeons, Boston, 1902; aged 43; who was honorably discharged from the service, Nov. 30, 1918; is reported to have died, February 4, in Edmundston, N. B., from the effects of poison, self-administered, it is believed, with suicidal intent.

**Martin Maximilian Holzman** ⊕ **Lieut., M. C., U. S. Army,** New York City; College of Physicians and Surgeons in the City of New York, 1915; aged 27; assistant attending genito-urinary surgeon at the West Side Hospital, New York City; on duty at Fort Oglethorpe, Ga.; died, Oct. 28, 1918, from acute bronchopneumonia.

**Frederick Arthur Henderson** ⊕ **Lieut., M. C., U. S. Army,** Kokomo, Ind.; Jefferson Medical College, 1912; aged 32; who entered the Army in August, 1917, and was on duty at Fort Benjamin Harrison, Ind., and later at Camp Zachary Taylor; died in Fort Bayard, N. M., Nov. 30, 1918, from pulmonary tuberculosis.

⊕ Indicates "Fellow" of the American Medical Association.

**John Great Corson** ⊕ **Lieut., M. C., U. S. Army,** Binghamton, N. Y.; University of Syracuse, N. Y., 1915; aged 27; who had been on duty with a medical detachment of the British E. F. in France, and was thence invalided to England; died in a hospital in London, Oct. 23, 1918, from lobar pneumonia.

**William Charles Griggs** ⊕ Philadelphia; New York University, New York City, 1890; aged 51; for several years a missionary of the American Baptist Missionary Union in Burmah; a resident of Philadelphia for thirteen years; died suddenly in the Misericordia Hospital, Philadelphia, February 3.

**Benjamin Franklin Currie,** Burke, Texas; University of Texas, Galveston, 1911; aged 30; a member of the State Medical Association of Texas; formerly acting assistant surgeon U. S. P. H. S., with station at Fort Stanton, N. M.; died at San Angelo, Texas, January 3, from pulmonary tuberculosis.

**Noah Norman McFarland** ⊕ **Lieut., M. C., U. S. Army,** Memphis, Tenn.; University of Tennessee, Nashville, 1913; aged 28; died in Camp Greene, Charlotte, N. C., Dec. 16, 1918, from the effects of incised and lacerated wounds of either side of the neck, severing both jugular veins.

**Oscar Gilbert Smith,** New York City; College of Physicians and Surgeons in the City of New York, 1854; aged 88; a fellow member of the New York Academy of Medicine since 1866; a charter member of the Medical Society of the Greater New York; died at his home, February 4.

**Ingvald Martinius Josephson Hotvedt** ⊕ Muskegon, Mich.; University of Minnesota, Minneapolis, 1899; aged 46; a specialist in surgery; a linguist of note, and for several years a missionary in China; was shot and killed in his office, February 10, by an angered or insane patient.

**Erlo Elsten Kennedy,** Denver; Baltimore Medical College, 1905; aged 38; secretary of the Colorado State Board of Health; for two years a member of the House of Representatives, and chief clerk of that body; died at his home, February 4, from influenza.

**Knight William Field** ⊕ **Lieut., M. C., U. S. Army,** Dallas, Texas; Tulane University, New Orleans, 1900; aged 42; formerly on duty at Camp Hancock, Augusta, Ga., and later with the American Expeditionary Forces in France; died in France, Oct. 11, 1918.

**Thomas J. Horsley** ⊕ Mangum, Okla.; Barnes Medical College, St. Louis, 1891; aged 46; a specialist in diseases of the eye, ear, nose and throat; secretary of the Greer County, Okla., Medical Society; was found dead in his office, January 9, from heart disease.

**Burton Paul Bradley** ⊕ **Lieut., M. C., U. S. Army,** Rome, Ga.; Emory University, Atlanta, Ga., 1915; aged 25; assigned to duty with field hospital, No. 347, Sanitary Train 312, Camp Pike, Little Rock, Ark.; died Oct. 16, 1918, from acute bronchial pneumonia.

**Daniel MacDonald,** New York City; New York Homeopathic Medical College, New York City, 1912; aged 58; professor of pathology in Fordham University, who formerly occupied a similar position in the Woman's College; died at his home, February 5, from Bright's disease.

**Harmar D. Moore,** New Lexington, Pa.; Jefferson Medical College, 1873; at one time a member of the Medical Society of the State of Pennsylvania; for fifty years a practitioner of Somerset County and Pittsburgh; died at his home, February 7.

**George C. Watson,** New Concord, Ohio; Starling Medical College, Columbus, Ohio, 1889; aged 52; postmaster of New Concord for twelve years and cashier of the First National Bank; died at his home, January 28, from carcinoma.

**Benjamin George Jones** ⊕ **Lieut., M. C., U. S. Army,** Oklahoma City, Okla.; University of Oklahoma, Norman, and Oklahoma City, 1917; aged 26; on duty at Newport News, Va.; died Oct. 17, 1918, from double lobar pneumonia.

**Lumus C. Newton,** Detroit, Mich.; College of Physicians and Surgeons, Baltimore, 1880; aged 64; formerly a member and president of the Detroit School Board; died in Grace Hospital, Detroit, January 31, from acute nephritis.

**Leon Hirsch** ⊕ Pittsburgh, Jefferson Medical College, 1896; aged 42; also a graduate of the Pittsburgh College of Pharmacy; a member of the staff of Passavant Hospital, Pittsburgh; died recently in Mercy Hospital, Pittsburgh.

**Valentin T. Guanio y Tinio,** Gapan, P. I.; University of the Philippines, Manila, 1915; is reported to have died recently from bronchopneumonia.

**Jonas M. O. Tufty** ⊕ Duluth, Minn.; University of Christiania, Norway, 1885; aged 61; for thirty years a practitioner of Duluth, and for two terms a member of the library board; died at his home, January 4, from heart disease.

**Harry Robinson Parker** ⊕ **Lieut., M. C., U. S. Army,** Williamson, W. Va.; University of Vermont, Burlington, 1907; aged 34; on duty at Hazelhurst Field, Mineola, L. I.; died Dec. 23, 1918, from lobar pneumonia.

**Stephen James Hawes** ⊕ **Lieut., M. C., U. S. Army,** Dover, N. C.; University College of Medicine, Richmond, Va., 1911; aged 32; on duty at Camp Jackson, Columbia, S. C.; died Dec. 14, 1918, from bronchial pneumonia.

**Bryant Carr Rudder** ⊕ **Lieut., M. C., U. S. Army,** Walker Springs, Ala.; Universities of Nashville and Tennessee, Nashville, 1911; aged 32; on duty at Fort Oglethorpe, Ga.; died Oct. 14, 1918, from bronchopneumonia.

**Samuel G. Crawford,** Sedalia, Mo.; Kentucky School of Medicine, Louisville, 1880; aged 77; colonel of the Forty-Ninth Kentucky Volunteer Infantry, during the Civil War; died at his home, January 31.

**Robert T. Connally,** Mena, Ark. (license, Arkansas, 1903); aged 74; at one time a member of the Arkansas Medical Society; a Confederate veteran; died at the home of his son, in Rocky, Ark., January 30.

**Hugh Zollicoffer Browne** ⊕ **Lieut., M. C., U. S. Army,** Kosciusko, Miss.; Tulane University, New Orleans, 1911; aged 32; on duty at Fort Oglethorpe, Ga.; died Oct. 22, 1918, from acute bronchial pneumonia.

**Glenn Elbert Haughey** ⊕ **Lieut., M. C., U. S. Army,** Wakeeney, Kan.; Kansas Medical College, Topeka, 1908; aged 34; on duty at Fort Oglethorpe, Ga.; died Oct. 24, 1918, from acute bronchopneumonia.

**Matthew Joseph Foley** ⊕ **Lieut., M. C., U. S. Army,** New Haven, Conn.; Eclectic Medical Institute, Cincinnati, 1917; aged 27; died in Camp Meade, Admiral, Md., Oct. 10, 1918, from bronchopneumonia.

**John Hamlin Traylor** ⊕ **Capt., M. C., U. S. Army,** Cuero, Tex.; Vanderbilt University, Nashville, Tenn., 1909; aged 31; on duty at Camp McArthur, Tex.; died Oct. 26, 1918, from acute meningitis.

**James Harvey Todd, Major, C. A. M. C.,** Toronto, Ont.; University of Toronto, Ont., 1905; aged 35; on duty at Quebec; died in that city, Oct. 17, 1918, from pneumonia following influenza.

**John Richard Fischer** ⊕ **Lieut., M. C., U. S. Army,** Utica, N. Y.; University and Bellevue Hospital Medical College, 1917; aged 26; died Oct. 31, 1918, from chronic pulmonary tuberculosis.

**James S. Kugler,** Sharon, Pa.; Eclectic Medical College of Pennsylvania Philadelphia, 1869; aged 89; said to have been the oldest practitioner of Mercer County; died at his home, January 28.

**Charles Francis Cropp** ⊕ **Lieut., M. C., U. S. Army,** Independence, Ore.; Willamette University, Salem, Ore., 1913; age 33; died January 6, from bronchopneumonia following influenza.

**Orin Worrett Robe** ⊕ **Capt., M. C., U. S. Army,** Portsmouth, O.; Starling Medical College, Columbus, O., 1891; aged 50; a specialist in surgery; died Oct. 25, 1918, from chronic myocarditis.

**Murat Halstead Scott** ⊕ **Lieut., M. C., U. S. Army,** Harrison, O.; University of Cincinnati, 1914; aged 28; on duty at Fort Oglethorpe, Ga.; died Oct. 19, from lobar pneumonia.

**David D. Talbott,** Lewistown, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1864; aged 81; was found dead in his office, January 18.

**Orange C. Darling,** Riverside, Calif.; Eclectic Medical Institute, Cincinnati, 1882; aged 62; died in the Loma Linda Sanitarium, January 21.

**Alonzo Caldwell Miller,** Washington, D. C.; Howard University, Washington, D. C., 1894; aged 47; died at his home, January 20.

**John H. Kern** ⊕ St. Louis; Missouri Medical College, St. Louis, 1894; aged 55; died at his home, January 16, from aneurysm.

**Luther T. Cheatham,** Louisville (Ky.) Hospital College of Medicine, Louisville, 1891; aged 49; died at his home, January 16, from pulmonary abscess.

**Walter W. Holloway,** Lexington, Ky.; University of Louisville, Ky., 1880; aged 61; died at his home, January 18, from chronic nephritis.

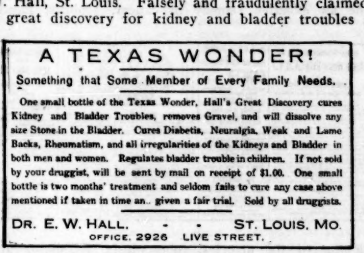
# *The Propaganda for Reform*

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

## MISBRANDED NOSTRUMS

### How the Bureau of Chemistry Is Protecting the Public Against "Patent Medicines" Sold Under Fraudulent or Misleading Claims

**Hall's "Texas Wonder."**—Shipped about April, 1917, by E. W. Hall, St. Louis. Falsely and fraudulently claimed to be a great discovery for kidney and bladder troubles and


A TEXAS WONDER!

Something that Some Member of Every Family Needs.

One small bottle of the Texas Wonder, Hall's Great Discovery cures Kidney and Bladder Troubles, removes Gravel, and will dissolve any size Stone in the Bladder. Cures Diabetis, Neuralgia, Weak and Lame Backs, Rheumatism, and all irregularities of the Kidneys and Bladder in both men and women. Regulates bladder trouble in children. If not sold by your druggist, will be sent by mail on receipt of $1.00. One small bottle is two months' treatment and seldom fails to cure any case above mentioned if taken in time an.. given a fair trial. Sold by all druggists.

DR. E. W. HALL. - - ST. LOUIS, MO.
OFFICE, 2926 LIVE STREET.

diabetes, and to dissolve gravel. Condemned, forfeited, and ordered destroyed by the court.—[*Notice of Judgment No. 5957.*]

**King's Liver and Kidney Alterative and Blood Cleanser.**—Shipped in January, 1916, by Chas. A. Ritchey, Chicago. Analysis showed the product to consist essentially of a solution of Epsom salt, aloes, quassia, caramel and oil of sassafras. Falsely and misleadingly represented as to composition, and fraudulently represented as a remedy for erysipelas, syphilis, female weakness, "cancerous humors," etc. Fine, $200 and costs.—[*Notice of Judgment No. 5985.*]

**En-Ar-Co Oil.**—Shipped in January, 1917, by the National Remedy Co., New York City, under the name of Chas. E. Crittenden Co. Analysis showed the preparation to be essen-

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DON'T let anyone get ahead of you. Mail us your application AT ONCE, and secure the Agency for the old reliable (EN-AR-CO OIL) famous over a quarter century as *The Wonderful Japanese Oil* and our other Standard Remedies.

DON'T DELAY! DO IT NOW!

En-Ar-Co Oil, known throughout our complete list, which contains a remedy for almost every ailment of Man and Beast. Not only effective in relieving many human ills, but it is also the best known and most successful remedy for diseases of animals and poultry.

Beware of Imitators. All our Remedies bear our Signature and Trade Mark.

Terms to Commission Agents

The $1.00 Remedy is charged to Agents at 60c per bottle, the 50c Remedies at 30c each, and the 25c Remedies at 15c each. Then you will see the agent's profit every time on the retail price.

On receipt of your applications satisfactorily filled out, we will ship you by express the following assortments on consignment or proof for as sold

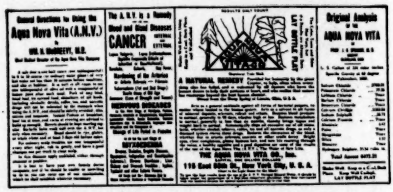
tially a water-alcohol solution of amyl and ethyl alcohols, acetone, capsicum extractives, a saffrol-containing oil, a light mineral oil, and a fixed vegetable oil. Falsely and fraudulently represented as a remedy for asthma, rheumatism, snake bites, corns and bunions, chicken cholera, hog cholera, lockjaw, spavin and heaves. Fine, $50.—[*Notice of Judgment No. 6002.*] This preparation was investigated by the Propaganda Department and analyzed by the A. M. A. chemical laboratory in 1911, and exposed in THE JOURNAL, July 29, 1911.

**Lindsey's Improved Blood Searcher.**—Shipped in February, 1916, by the W. J. Gilmore Drug Co., Pittsburgh. Analysis showed the preparation to be an alcohol-water solution of sugars, salicyclic acid, aromatic oils, plant extractives, an

calcium salts, with indications of guaiac. Falsely and fraudulently represented as a blood purifier and a remedy for diseases of women, malaria, cancer, sore eyes, piles, etc. Fine, $50.—[*Notice of Judgment No. 5973.*]

**White Eagle's Indian Oil Liniment.**—Shipped in January, 1917, by Aaron P. and Caroline McCarty, doing business as the White Eagle Medicine Co., Piqua, Ohio. Analysis showed the product to consist essentially of kerosene and a saponifiable oil, together with a small amount of oil of sassafras. Falsely and fraudulently represented to be a cure for diphtheria, hay-fever, goiter, deafness, rheumatism, etc. Fine, $50 and costs.—[*Notice of Judgment No. 6090.*]

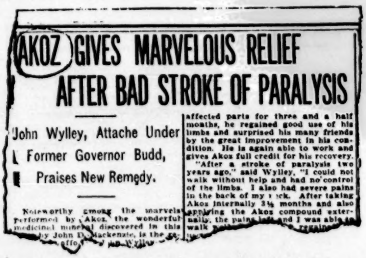
**Aqua Nova Vita.**—Shipped in December, 1914, by the Aqua Nova Vita Co., Easton, Pa. Falsely and fraudulently claimed to be an effective remedy in cancer, syphilis, hay-fever,




hardening of the arteries, tuberculosis, locomotor ataxia, Bright's disease, diabetes, etc. Fine, $75.—[*Notice of Judgment No. 6136.*]

**Brown's New Consumption Remedy.**—Shipped in March, 1916, by David H. Brown, trading as the Magnolia Remedy Co., St. Augustine, Fla. Analysis showed the product to be a dark brown emulsion, containing essentially creosote, phosphoric acid, sodium phosphate, Epsom salt, glucose, sugar and a trace of an alkaloid. Falsely and fraudulently represented as a remedy for consumption, pneumonia, la grippe, etc. Fine, $50 and costs.—[*Notice of Judgment No. 6143.*]

**Akoz.**—Consigned in August, 1917, by the Natura Co., San Francisco, to a concern in Bilbao, Spain. There were various products in the consignment, one being "Akoz Ointment,"


AKOZ GIVES MARVELOUS RELIEF
AFTER BAD STROKE OF PARALYSIS

John Wylley, Attache Under Former Governor Budd, Praises New Remedy.

affected parts for three and a half months, he regained good use of his limbs and surprised his many friends by the great improvement in his condition. He is again able to work and gives Akoz full credit for his recovery.

"After a stroke of paralysis two years ago," said Wylley, "I could not walk without help and had no control of the limbs. I also had severe pains in the back of my neck. After taking Akoz internally 3½ months and also applying the Akoz compound externally, the pains left and I was able to walk

represented as "A Natural Remedy for Skin Diseases . . . Hemorrhoids," etc.; another was "Akoz Rectal Suppositories," for hemorrhoids, ulcerations, etc.; still another was "Akoz Powder"[1] for "kidney troubles," rheumatism, dyspepsia, etc.; "Akoz Dusting Powder," for eczema, chronic ulcers, acne, etc.; "Akoz Plaster," for rheumatism, neuritis, pain in back, etc.; "Akoz Compound," for rheumatism, neuralgia, etc. The claims for all of these products were declared to be false and fraudulent, as they contained no ingredients or combination of ingredients capable of producing the therapeutic effects claimed. The court entered judgment of condemnation and forfeiture, and ordered that the stuff should be destroyed.—[*Notice of Judgment No. 6026.*]

**Fenner's Kidney and Backache Remedy.**—Shipped in January, 1913, by the M. M. Fenner Co. Analysis showed the stuff to contain over 11 per cent. alcohol, potassium acetate and methyl salicylate. Falsely and fraudulently represented as a cure for inflammation of the kidneys, catarrh of the bladder, heart disease, leukorrhea, etc. Fine, $25.—[*Notice of Judgment No. 6119.*]

**Wine of Chenstohow.**—Shipped in March, 1915, by A. Skarzynski & Co., Buffalo. Analysis showed the stuff to contain over 17 per cent. alcohol, nearly 10 per cent. reducing sugars, and small amounts of emodin. Falsely and fraudulently claimed to be a remedy for stomach affections, and a cure for general debility, loss of strength, piles, etc. Fine, $75.—[*Notice of Judgment No. 6125.*]

## *Correspondence*

### REPORT OF A CASE OF CYANOSIS AT CAMP JACKSON, S. C., DUE TO POISONING FROM SHOE DYE

*To the Editor:*—Recently (THE JOURNAL, Feb. 8, 1919, p. 395) I reported a series of seventeen cases of cyanosis due to methemoglobinemia caused by poisoning by a shoe dye. All these cases occurred at Camp Johnston, Fla. Seven of the seventeen men gave a history of having had their shoes or their puttees dyed the day they became cyanotic, or of having worn newly dyed shoes and puttees on that day. One other man who had been cyanotic several weeks before he was interviewed asserted that his shoes were dyed after he left the hospital. Six of the other nine men who had gone overseas and whose history could not be obtained at the last writing have been heard from and have given a positive history. The evidence against the shoe dye was convincing, both from the experimental poisoning of white mice and of several men volunteers, and from the chemical examination of the dye, which showed the presence of nitrobenzene or some compound containing the grouping . Most of the cases of poisoning at Camp Johnston were in recently commissioned student officers who were discarding their canvas puttees for leather puttees worn by officers. In order to make the light colored tan shoes furnished by the Quartermaster's Department match the dark colored leather puttees worn by officers, the shoes and sometimes both shoes and puttees were dyed by a special brown oily preparation. In all but one of the Camp Johnston cases the dye was applied at a certain boot-black stand in Jacksonville. In one case, however, the dye was bought of a well known shoe firm in Jacksonville, which has branch stores in all the large cities, a fact which made me curious to know whether similar cases of methemoglobinemia had not occurred at other camps.

Through the kindness of Major W. W. Herrick, M. C., chief of the medical service at Camp Jackson, S. C., who told me of an unexplained case of cyanosis at the base hospital at Camp Jackson, and who investigated the case at my request with reference to possible poisoning from a shoe dye, I am able to furnish the history:

Lieut. H. R. H. D. C., admitted to the officers' ward of the base hospital of Camp Jackson, S. C., July 25, 1918, had been told by a friend that his face and lips were blue. A little later he had nausea and headache, but did not feel bad enough to go to bed. Later his friends insisted that he consult a physician on account of his strange color. At 9:30 p. m. on admission to the hospital there were headache, nausea, vomiting and extreme cyanosis. The pulse was frequent, weak, and of low pressure. The heart sounds were feeble. The skin was very cyanotic, cold and sweating. The patient was exhausted, vomited, and complained of headache. The heart rate was 100 and regular. There

1. An examination in the A. M. A. Chemical Laboratory showed that Akoz Powder contained 2.2 per cent. of lead sulphate. In view of the disastrous results which have followed the internal use of compounds containing small amounts of lead, the Natura Company was advised by the Laboratory of the finding (Rep. A. M. A. Chemical Laboratory, 1916, p. 103).

was a slight systolic murmur over the precordia, not transmitted. There were a few sibilant and subcrepitant râles at the right upper anterior chest, with relative dulness at the angle of the right scapula. The rest of the physical examination was negative. On the following morning the patient felt very much better. The cyanosis disappeared in about twelve hours. No chemical tests were made. The diagnosis was "heat exhaustion and acute indigestion."

Jan. 8, 1919, Major Herrick received the following letter from the patient, who had been honorably discharged and was practicing dentistry in West Virginia:

"I am pleased to say that I *did* use a dye on my shoes and puttees the evening before I was taken to the base hospital at Camp Jackson. I do not know the name of the dye I was using, but it was bought from the 317th F. A. Canteen."

It is evident from the report of these cases that the use of russet shoe dyes is dangerous; even those dyes that are "guaranteed odorless" can produce marked cyanosis. Shoes and puttees should not be worn for three or four days after they have been dyed, and they should never be dyed while worn. The orange colored cleaning liquids and the russet pastes for polishing are harmless and may be safely and freely used.

RICHARD E. STIFEL, M.D.,
Camp Johnston, Jacksonville, Fla.
Captain, M C., U. S. Army; Chief of Laboratory, Base Hospital.

## "METHEMOGLOBINEMIA DUE TO POISONING BY SHOE DYE"

*To the Editor:*—The article in THE JOURNAL, February 8, p. 395, on "Methemoglobinemia Due to Poisoning by Shoe Dye" is interesting, but there are some facts which make it appear doubtful that Dr. Stifel is correct in his judgment as to the toxic agent. I have had occasion to examine considerable numbers of shoe dyes, and in all cases have found nitrobenzene present in large percentages. It is, in fact, extremely difficult to prepare a satisfactory commercial product of this type without the use of nitrobenzene in substantial quantity. For that reason it seems highly probable that if this were truly the cause of the symptoms described in Dr. Stifel's paper, there would have been a great number of similar cases reported. This material has been used in large quantities for many years and under conditions just as likely to produce poisoning as those described by Dr. Stifel. Is it not possible that the symptoms were due, not to nitrobenzene itself, but to some by-product accompanying it, such as the highly toxic tetranitromethane, which is frequently produced in the manufacture of trinitrotoluene?

CARL S. MINER, Chicago.

## STATISTICAL STUDY OF THE INFLUENZA EPIDEMIC

*To the Editor:*—The American Public Health Association, Vital Statistics Section, appointed a Committee on Statistical Study of the Influenza Epidemic, Nov. 20, 1918. Under the auspices of this committee, a meeting of the state and municipal registrars in the Eastern states was held at the Hygiene Laboratory of the University of Pennsylvania, Philadelphia, November 29 and 30. At this initial conference there were present also several private statisticians interested in the public health statistics of the epidemic and the results to be derived from study of such data. A series of suggestions was made up, mimeographed and sent to statistical and public health workers for criticism. At the meeting of the Vital Statistics Section in Chicago, December 11, the committee submitted a report on its activities and asked for authority to continue further inquiry into a program of statistical study of the epidemic. The section authorized the continuance of the committee and provided that representatives of the United States Bureau of the Census, of the United States Army and Navy, of the United States Public Health Service, of the state and municipal health boards, and the various statistical, sociological, actuarial and economic associations be represented thereon. The committee was specifically authorized to act in an advisory capacity, first, to outline the various sources of data and the minimum standards of tabular and registration practice to be observed by several organizations providing data, and, second, to bring in recommendations on the pathometric or mathematical analysis of published epidemic data. The committee was divided into four subcommittees:

SUBCOMMITTEE A.—*Registration and Tabulation Practice of the Federal Departments:* William H. Davis, M.D., chief statistician, Division of Vital Statistics, Bureau of the Census, chairman; Richard C. Lappin, recorder.

SUBCOMMITTEE B.—*Registration and Tabulation Practice of the State Departments and Commissions:* Otto R. Eichel, M.D., director, Division of Vital Statistics, New York State Department of Health, Albany, chairman; Edwin W. Kopf, recorder.

SUBCOMMITTEE C.—*Registration and Tabulation Practice of Municipal Boards of Health and of Private Public Health Agencies:* Charles Scott Miller, M.D., Philadelphia Department of Health, chairman.

SUBCOMMITTEE D.—*Pathometry* (mathematical analysis and interpretation) *of the Epidemic:* Charles C. Grove, Ph.D., Columbia University, chairman; Arne Fisher, F. S. S., recorder.

Mr. E. W. Kopf was delegated to act as chairman of the general committee and to coordinate the work of the several subcommittees. The General Committee on Influenza Statistics of the Vital Statistics Section was authorized to cooperate in statistical matters with the Influenza Reference Committee of the entire association. (See "Influenza Bulletin: A Working Program," American Public Health Association, Boston, Dec. 13, 1918.)

At the Washington meeting of Subcommittee A, the subjects taken up were: estimates of population; the obtaining of estimates of army and navy populations by five year age periods, through random sampling if necessary, but by direct tabulation of army and navy enlistment records if possible; the causes of death reported during the epidemic, to be classified in accordance with the Manual of the International List of Causes of Death and the Index of Joint Causes as published by the Bureau of the Census; infant mortality, studied in such a manner as to show what part of this mortality was probably due to birth mortality arising out of influenzal illness of the mother and to the factor of neglect; norms of mortality during September, October and November.

It was also indicated that it was unwise to draw any conclusions from statistics of variations in bacterial flora at various stages in the epidemic or in different localities, unless it was shown that all laboratory conditions had been properly controlled. The army was requested to supply statistics as to influenzal sickness classified by five year age periods, by date of onset, by duration of illness in days, and by principal complications, showing fatality or lethal rates for 100 completed cases.

Subcommittee B considered the more intimate statistics of the epidemic in the states. The subcommittee pointed out that in certain cities and for certain states valuable data were available in the files which would lead to the determination of the norm of mortality during the fall and winter months of the year. The social statistics of the epidemic were emphasized. It was urged that statistics of the effect of the epidemic on the family should be collected. State and municipal governments were urged to make preparations necessary for the proper statistical study of the epidemic data.

The Subcommittee on Municipal Statistics discussed chiefly the available data in the files of maternity clinics and visiting nursing associations. It was indicated that thorough study of these records would bring out some of the important facts on the obstetric data of the epidemic.

The Subcommittee on Pathometry has outlined for itself the problems of mathematically testing and graduating the crude compiled data for norms of infant and adult mortality. The subcommittee has in mind the frequency curves of mortality from the several important causes of death during the fall and winter months of the year, especially the curves for infant mortality considered as (*a*) "birth mortality" and (*b*) "true infantile mortality." By means of modern analytic methods it was aimed to determine the true "excess mortality" during the epidemic. It was planned also to fit various curves to the observed epidemic data and to compute the equations and the constants of the distributions in the several areas under observation (mean, mode, dispersion, skewness, "excess").

The Subcommittee on Pathometry also anticipated that it could determine by delicate mathematical tests the *probable* date of the beginning, "peak" and ending of the several waves or phases of the epidemic in the various communities; and possibly, the approximate differential equations representing

the several recurrences or recrudescences of the epidemic could be established.

The methods of higher analysis applied to the influenza epidemic data can be of service to preventive medicine in the study of other diseases. The profession of statistics is confronted with an opportunity for unparalleled service to the medical sciences, among them preventive medicine.

EDWIN W. KOPF, New York.
General Chairman, Committee on Statistical Study of the Influenza Epidemic, Section on Vital Statistics, American Public Health Association.

### EYELASH IN THE CANALICULUS

*To the Editor:*—I note in THE JOURNAL, January 25, p. 275, the report of "A Unique Eye Case," an eyelash being found lodged in the canaliculus. I have had at least two similar cases. In each, there was experienced sudden irritation of the eye, and inspection revealed a lash partly protruding from the canaliculus. This was readily drawn out, with complete and immediate relief.

EDWIN A. CLARKE, M.D., Akron, Colo.

## *Queries and Minor Notes*

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

### OINTMENT FOR SCABIES—REMOVAL OF WARTS BY RADIUM —TRAGACANTH CREAM

*To the Editor:*—1. Please give a good prescription for scabies. 2. Please describe the best way to remove warts from the hands without electricity. 3. What treatment would you advise for a woman whose skin is dry but who develops a rash on the face, and whose eyes swell when the ordinary face creams are used? D. W. A.

ANSWER.—1. A good prescription is precipitated sulphur, Peruvian balsam, and green soap, each from 20 to 30 grains; zinc oxid, 2 drams, and petrolatum to make an ounce. This is rather a weak ointment, but is not likely to produce irritation like a full sulphur ointment. Patients should have a bath and a good scrub with soap and water at bedtime, and the ointment should be rubbed into the affected parts thoroughly. This may be done every night or every other night, according to the amount of irritation that occurs, for three or four applications. The dermatitis that may occur from it can be treated by bland ointments, such as a zinc oxid ointment containing 2 drams zinc oxid to 1 ounce petrolatum.

2. Among many other methods, warts may perhaps best be treated by radium. The radium is applied by applicator to the wart a sufficient length of time to produce a dry dermatitis. How long this is depends on the amount of radium in the applicator.

3. The following tragacanth lotion might be utilized:

| | |
|---|---|
| Tragacanth | 80 grains |
| Glycerin | 1 ounce |
| Boric acid | ½ ounce |
| Oil of bergamot | 20 drops |
| Water to make a pint. | |

Dissolve the tragacanth and glycerin in the water by warming gently. Cool and add the oil of bergamot.

### PREVENTION OF HEADACHE FOLLOWING LUMBAR PUNCTURE

*To the Editor:*—Do you know of any method of preventing the intense headache that not infrequently follows lumbar puncture for diagnostic purposes? Treating a large number of cases of syphilis, and seeing quite a number for other men, I have frequent occasion to do lumbar punctures. In a considerable percentage of these cases, even when every precaution is taken and the patient remains in bed for twenty-four hours after the puncture, a very severe headache follows. This headache may last from two or three to five or six days. It is immediately relieved if the patient takes a recumbent position, but starts again on arising. It is sometimes accompanied by vomiting. I have found that atropin will usually stop the vomiting, but as yet have found nothing that has any effect on the headache except lying down.

A few years ago—noting that I never have this symptom following Swift Ellis treatments (of which I had then done several hundreds) I thought it could be avoided by replacing the fluid removed by autogenous serum. This did not prove true, however, the same number of persons getting the headache as after simple puncture.

I have never to my recollection had the reaction in a case in which the spinal fluid showed evidence of disease of the nervous system. It is always in the cases in which the fluid is found to be negative.

In the literature of the past few years I have seen only one reference to the condition, and there it was suggested that the patient be kept in bed for twenty-four hours.

Realizing the importance of fluid examination in all cases of syphilis, I am very much interested to know if any one has found a way of preventing this very distressing symptom, or of helping it after it has once developed. H. LE BARON PETERS, M.D., Bridgeport, Conn.

ANSWER.—The intense headache in question may practically always be prevented if two conditions are rigidly observed: first, to use a needle of small caliber, preferably not exceeding 0.8 or even 0.6 mm. in diameter; second, to keep the patient recumbent for forty hours. By experiment and experience on human beings, Sicard of Paris learned that the puncture in the dura mater does not close under thirty hours and generally requires from thirty-four to thirty-six hours. He believes that the headache is caused not by the trivial amount of fluid taken for examination but by constant seepage through the punctured dura. A neurologist who has followed this advice in handling a large number of cases for nearly five years states that, during that time, he has had only two cases of severe headache following lumbar puncture.

### WILDROOT DANDRUFF AND ECZEMA CURE

*To the Editor:*—Will you please publish under "Queries and Minor Notes" the composition of "Wildroot Dandruff and Eczema Cure" marketed by the Wildroot Chemical Co. of Buffalo, N. Y.?

WM. S. ROBERTSON, M.D., Charleston, W. Va.

ANSWER.—The pamphlet, "Cosmetic Nostrums," issued by the Propaganda department of THE JOURNAL has the following to say about this product: "This preparation, put on the market by the Wildroot Chemical Company, Buffalo, N. Y., is thus characterized by Dr. Harvey W. Wiley in his book '1001 Tests,' revised edition: 'Contains arsenic, and some phenolic body, probably resorcin; perfumed and colored. The trace of alkaloidal material present was too small for identification. Contains 40 per cent. of alcohol, as declared, and less than one half of 1 per cent. of nonvolatile matter. Claims that it is an herb compound and a positive remedy for eczema and dandruff obviously untenable.'"

### BENZYL ALCOHOL

*To the Editor:*—The following appeared in the Chicago *Tribune*, Feb. 17, 1919:

"Dr. David I. Macht of Johns Hopkins University has discovered a new local anesthetic that is about forty times less toxic than cocain.

"The drug itself—benzyl alcohol, or phenmethylol—is not new, but its properties in producing local anesthesia are in the nature of a complete discovery that is attracting much attention in medical and surgical circles."

What are the facts in the case? READER, Chicago.

ANSWER.—The paragraph quoted is correct. While experience alone will tell whether or not the local anesthetic comes up to the expectations of its discoverer, it was deemed of sufficient promise by the Council on Pharmacy and Chemistry to warrant admission to New and Nonofficial Remedies. For a detailed description of benzyl alcohol, see the New and Nonfficial Remedies department of THE JOURNAL, Oct. 19, 1918, p. 1313.

**Malaria Simulating Rabies.**—A. Castellani (*Arch. méd. Belg.*, August, 1918, p. 145) describes an attack simulating rabies in a patient in Colombo, Ceylon, who had malaria. The diagnosis of rabies had been made. At the time Castellani saw him the patient was in an attack apparently of hydrophobia with a temperature of 102 F. The sight of water produced violent spasm of the larynx. An examination of the patient's blood during the paroxysms showed the parasites of malaria. Fifteen grains of quinin by intramuscular injection caused the disappearance of the symptoms of rabies in a few hours. Castellani says it was perhaps a hydrophobic syndrome of the nature of hysteria in a malarial subject, although the patient was not a neuropath and presented none of the stigmata of hysteria.

# Medical Education and State Boards of Registration

## COMING EXAMINATIONS

ALASKA: Juneau, March 4. Sec., Dr. L. P. Dawes, Juneau.

ARIZONA: Phoenix, April 1. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.

CALIFORNIA: Los Angeles, March 17-20. Sec., Dr. C. B. Pinkham, State Capitol, Sacramento.

COLORADO: Denver, April 1. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: New Haven, March 11-12. Sec. Reg. Bd., Dr. Chas. A. Tuttle, 196 York St., New Haven; Sec. Eclectic Bd., Dr. J. E. Hair, 730 State St., Bridgeport, and Sec. Homeo. Bd., Dr. E. C. M. Hall, 82 Grand Ave., New Haven.

DISTRICT OF COLUMBIA: Washington, April 9-11. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

IDAHO: Pocatello, April 1-2. Sec., Dr. Ray H. Fisher, Rigly.

ILLINOIS: Chicago, March 3-5. Mr. F. C. Dodds, Supt. of Registration, Springfield.

INDIANA: Indianapolis, Feb. 26-28. Sec., Dr. W. T. Gott, 84 State Capitol Bldg., Indianapolis.

IOWA: Iowa City, March 24-26. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

MAINE: Portland, March 11-12. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MASSACHUSETTS: Boston, March 11-13. Sec., Dr. W. P. Bowers, Rm. 501, No. 1 Beacon St., Boston.

MINNESOTA: Minneapolis, April 1-4. Sec., Dr. T. S. McDavitt, 741 Lowry Bldg., St. Paul.

MONTANA: Helena, April 1. Sec., Dr. S. A. Cooney, 205 Power Bldg., Helena.

NATIONAL BOARD OF MEDICAL EXAMINERS: Philadelphia, June 2-7. Sec., Dr. J. S. Rodman, 1310 Medical Arts Bldg., Philadelphia.

NEW HAMPSHIRE: Concord, March 13-14. Sec., Dr. Charles Duncan, Concord.

OKLAHOMA: Oklahoma City, April 8-9. Sec., Dr. J. J. Williams, Weatherford.

RHODE ISLAND: Providence, April 3-4. Sec., Dr. B. U. Richards, State House, Providence.

### California October Examination

Dr. C. B. Pinkham, secretary of the California State Board of Medical Examiners, reports the written examination held at Sacramento, Oct. 21-23, 1918. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of the 34 candidates who took the physician's and surgeon's examination, 19, including 8 osteopaths, passed, and 15, including 8 osteopaths, failed. Four candidates, including 3 osteopaths, were licensed, their marks having been reconsidered and raised to passing grade. Fifty-one candidates were licensed through reciprocity. Two candidates received osteopathic reciprocity licenses, and 2 candidates received drugless healer reciprocity licenses. The following colleges were represented:

| College | Year Grad. | Per Cent. |
|---|---|---|
| **PASSED** | | |
| College of Medical Evangelists | (1918) | 78.2 |
| College of Phys. and Surg., San Francisco | (1918) | 75, 77.1, 77.7, 77.8 79.8, 81.1, 81.8. |
| Hahnemann Medical College of the Pacific | (1918) | 75 |
| Leland Stanford Junior University | (1917) | 90.2, (1918) 73.8 |
| Oakland College of Med. and Surg. | (1918) | 97.5 |
| **FAILED** | | |
| College of Phys. and Surg., Los Angeles | (1918) | 70.7 |
| College of Phys. and Surg., San Francisco | (1918) | 54.7, 70.3, 71.4. |
| California Eclectic Medical College | (1918) | 10* |
| Hahnemann Medical College of the Pacific | (1918) | 60.8 |
| Tufts College Medical School | (1918) | 73.8 |

| College | LICENSED THROUGH RECIPROCITY | Year Grad. | Reciprocity with |
|---|---|---|---|
| Denver and Gross College of Medicine | | (1905) | Washington |
| Denver College of Medicine | | (1900) | Utah |
| American Medical Missionary College | | (1905) | Mich., Oregon |
| Chicago College of Medicine and Surgery | | (1910) (1915) | (1916) Illinois Iowa |
| College of Phys. and Surg., Chicago | | (1897) | Wisconsin |
| | | (1901) (1906) | Illinois; (1907) Washington (1910) Iowa |
| Northwestern University | | (1892) | Illinois; (1903) Ia.; (1906) S. Dakota |
| Northwestern University Woman's School | | (1901) | Illinois |
| Rush Medical College | | (1896) | Ohio; (1902) Iowa; (1904) Illinois |
| University of Illinois | | (1916) | Ohio |
| Indiana University | | (1911) | Indiana |
| Tulane University | | (1913) | Oklahoma |
| Baltimore Medical College | | (1901) | Vermont; (1903) Penna. |
| College of Phys. and Surg., Baltimore | | (1906) | Maryland |
| Johns Hopkins University | | (1913) | New York |
| Tufts College Medical School | | (1904) | N. Hampshire; (1906) Mass. |
| Ensworth Medical College | | (1894) | Missouri |
| Homeopathic Medical College of Missouri | | (1895) | Missouri |
| Kansas City College of Medicine and Surgery | | (1917, 2) | Arkansas |
| St. Louis College of Phys. and Surg. | | (1897) | Indiana |
| St. Louis Medical College | | (1886) | Missouri |
| St. Louis University | | (1913) | Arizona |
| University Med. College of Kansas City | | (1911) | Missouri |
| John A. Creighton Medical College | | (1909) (1914) | Nebraska |
| University of the City of New York | | (1895) | New York |
| University of Buffalo | | (1897) | New York |
| Leonard Medical School | | (1906) | Virginia |
| Cleveland College of Phys. and Surg. | | (1897) | Penna. |
| Cleveland Homeopathic Medical College | | (1904) | Missouri |
| Jefferson Medical College | | (1902) | New York |
| Meharry Medical College | | (1913) | Oregon |
| Universities of Nashville and Tennessee | | (1911) | Texas |
| University of Texas | | (1905) | Texas |
| Trinity Medical College | | (1901) | New York |
| McGill University | | (1881) | Arizona |
| University of Berlin | | (1873) | New York |
| University of Moscow | | (1900) | Ohio |

* Did not complete the examination.

### Montana October Examination

Dr. S. A. Cooney, secretary of the Montana State Board of Medical Examiners, reports the written examination held at Helena, Oct. 1-3, 1918. The examination covered 10 subjects and included 50 questions. An average of 75 per cent. was required to pass. Of the 10 candidates examined, 8 passed and 2 failed. The following colleges were represented:

| College | Year Grad. | Per Cent. |
|---|---|---|
| **PASSED** | | |
| University of Colorado | (1912) 83.2; (1918) | 80.9 |
| Bennett Medical College | (1911) | 75.9 |
| Hahnemann Med. Coll. and Hosp of Chicago | (1916) | 79.9 |
| Rush Medical College | (1892) 82.1; (1918)* | 81.5 |
| Cincinnati College of Med. and Surg. | (1891) | 75.5 |
| Jefferson Medical College | (1918) | 83.2 |
| **FAILED** | | |
| Kentucky School of Med. of Louisville | (1884) | 61.2 |
| Kansas City Hahnemann Med. Coll. | (1905) | 69.6 |

* Received certificate for four years' work. Degree will be granted on completion of internship.

### Virginia December Examination

Dr. J. W. Preston, secretary of the Virginia State Board of Medical Examiners, reports the written examination held at Richmond, Dec. 10-13, 1918. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of the 17 candidates examined, 14 passed and 3 failed. Fifteen candidates were licensed through reciprocity. The following colleges were represented:

| College | Year Grad. | Per Cent. |
|---|---|---|
| **PASSED** | | |
| Southern College of Medicine and Surgery | (1914) | 75 |
| College of Physicians and Surgeons, Baltimore | (1889) | 80 |
| Toledo Medical College | (1905) | 78 |
| Jefferson Medical College | (1918) | 89, 93 |
| Medical College of Virginia | (1918) | 78, 82, 84, 84, 86, 86, 87, 90, 93. |
| **FAILED** | | |
| Homoepathic Hospital College, Cleveland | (1887) | 69 |
| Medical College of Virginia | (1917) 72; (1918) | 63 |

| College | LICENSED THROUGH RECIPROCITY | Year Grad. | Reciprocity with |
|---|---|---|---|
| Columbian University | | (1899) | Dist. Colum. |
| Atlanta College of Physicians and Surgeons | | (1912) | Florida |
| Kentucky School of Medicine of Louisville | | (1907) | W. Virginia |
| Medical School of Maine | | (1907) | Maine |
| University of Maryland | | (1906) | N. Carolina |
| Columbia University | | (1908) | Tennessee |
| North Carolina Medical College | | (1896) | N. Carolina |
| Jefferson Medical College | | (1918) | U. S. Navy |
| University of Pennsylvania | | (1917) | N. Carolina |
| Woman's Medical College of Pennsylvania | | (1916) | Penna. |
| Vanderbilt University | | (1913) | Tennessee |
| Medical College of Virginia | | (1904) (1904) | S. Carolina (1915) N. Carolina |
| University of Toronto | | (1911) | Penna. |

### Ohio January Meeting

Dr. H. M. Platter, secretary of the Ohio State Medical Board, reports that 12 candidates were licensed through reciprocity at the meeting held Jan. 7, 1919. The following colleges were represented:

| College | LICENSED THROUGH RECIPROCITY | Year Grad. | Reciprocity with |
|---|---|---|---|
| Rush Medical College | | (1913) | Penna. |
| Kansas Medical College | | (1894) | Louisiana |
| University of Louisville | | (1887) | Kentucky |
| Baltimore University | | (1900) | Delaware |
| College of Physicians and Surgeons, Baltimore | | (1882) | Virginia |
| Johns Hopkins University | | (1905) | Virginia |
| University of Michigan Medical School | | (1891) (1917, 2) | Iowa Michigan |
| St. Louis University | | (1915) | Missouri |
| University of Buffalo | | (1911) | New York |
| Medical College of Ohio | | (1884) | Indiana |

# Book Notices

PHYSIOLOGY AND BIOCHEMISTRY IN MODERN MEDICINE. By J. J. R. Macleod, M.B., Professor of Physiology in the University of Toronto, Assisted by Roy G. Pearce, B.A., M.D., Director of the Cardiorespiratory Laboratory of Lakeside Hospital, Cleveland, and by Others. Cloth. Price, $7.50. Pp. 903, with 233 illustrations. St. Louis: C. V. Mosby Company, 1918.

This is not a textbook of physiology as usually understood, but a thorough review of those parts of physiology and biochemistry that bear most directly on general clinical medicine, with particular reference to the needs of the advanced students and of physicians. An enumeration of the different parts will give an idea of the scope of the book: the physicochemical basis of physiologic processes, the circulating fluids, circulation of the blood, respiration, digestion, excretion of urine, metabolism, endocrine organs or ductless glands, and the central nervous system. The first part discusses in lucid fashion the great physical and physicochemical principles of physiology; the exposition here given of osmosis, the laws of solution, gas laws, ionization, hydrogen-ion concentration, regulation of neutrality, and acidosis, colloids and ferments should prove of great interest and help to physicians and students in their efforts to advance their real understanding of disease. By far the larger part of the book is devoted to the divisions of physiology just indicated, which were selected for review because they have such wide application in the study of diseases. Physiology of the special senses, of muscle and nerve, and of reproduction is not considered, and there is no systematic discussion of immunology. It is a well written, well balanced, authoritative work, competent in every way to satisfy its purpose, namely, to facilitate the study, interpretation and treatment of disease in the light of physiology and biochemistry. The book has great potential value because it presents adequately the knowledge of these sciences that the physician can use to deepen his grasp of the nature and meaning of the phenomena of disease.

PATHOLOGIE DE GUERRE DU LARYNX ET DE LA TRACHÉE. Par E. J. Moure, Professeur á la Faculté de Médecine de Bordeaux, G. Liébault, Ancien Interne des hôpitaux de Paris, et G. Canuyt, Ancien Interne des hôpitaux de Bordeaux. Paper. Price, 26 fr. 50. Pp. 370, with 135 illustrations. Paris: Félix Alcan, 1918.

At the outset of this work, attention is called to the relative infrequency of injuries of the larynx, owing to the protection afforded it by the inferior maxilla and because of its free mobility. Contrary to organic lesions, the functional disturbances, as shown in changes of the voice, are exceedingly numerous. The topics discussed are taken up in this order: 1. The functional disturbances without any objective lesion: Here are noted mutism (dumbness), stammering and aphonia. The general treatment consists of rest, fresh air, hydrotherapy, faradization, and sometimes sedatives or suggestions. Massage of the larynx and education of the voice by means of exercises also were employed. 2. Extrinsic lesions of the larynx: In a summary of the anatomy of the nerve supply of the larynx, attention is called to the well known fact that the same nerve (recurrent) supplies both the constrictors and the dilators, that is, antagonistic muscles; the other nerve (superior laryngeal), although a sensory one, innervates the tensor of the cords. Lesions of these nerves from bullet and other wounds, producing the classical paralyses, and injuries to the esophagus, base of the tongue and hypopharynx are also described. 3. Wounds of the laryngotracheal tract, including fractures, lacerations, lodgment of foreign bodies, etc.: Considerable space is given to the study of cicatricial stenoses following injuries, especially those due to bullets and grenades. Attention is called to the fact that many of these lesions are more severe and more difficult of treatment and cure than similar ones encountered in times of peace. The action of toxic gases on the respiratory tract is also described, and the treatment outlined. 4. Surgery of the larynx and trachea: Tracheotomy, laryngotomy and thyrotomy are considered in detail as regards indications, contraindications, exact description of technic, and comparison of procedures in times of peace and those employed in emergencies of war. The remainder of the volume is taken up with the treatment of cicatricial laryngeal stenoses. The authors most emphatically endorse local anesthesia in the operative work for the correction of the stenoses. For the closure of tracheal fistulas the autoplastic method of Moure is used. The work closes with a list of case histories, together with illustrations showing the methods and results of the tracheal operative procedures. Written with usual French clarity and precision, this book gives a fund of valuable information, yet is not so bulky as to be wearisome.

LA CURA DELLE FERITE TORACO-POLMONARI. Pneumotorace Artificiale Toracentesi Cura Dell'empiema. By Prof. Eugenio Morelli, Aiuto Alla Clinica Medica della R. Universita di Pavia. Paper. Pp. 181, with illustrations. Bologna: Licinio Cappelli, 1918.

This is a discussion of the subject of wounds of the chest, especially those in which hemothorax develops, with perhaps a later empyema. The causation—usually a bullet, shrapnel or shell splinter—is considered, together with the symptomatology and the results by various methods of treatment. The author had his schooling with Forlanini, whose work on the treatment of pulmonary tuberculosis, pulmonary hemorrhage, pleural effusions, etc., by means of artificial pneumothorax, is well known. It is not to be wondered at, therefore, that Morelli has applied the same principle to the treatment of this not infrequent accident of war. He has developed a technic that is accurately described in these pages and which, carefully carried out, has given surprisingly fine results, as shown by the case histories and the roentgenograms. The dangers of open pneumothorax as compared to closed are emphasized, a point that has been brought out by Duval and others of the French surgeons as well as by the Americans Graham and Mitchell, among others. The book seems to be a real contribution to clinical medicine and surgery, and its results, if confirmed by further trial, should be widely applied in civil as well as in military practice.

INFECTION AND RESISTENCE. An Exposition of the Biological Phenomena Underlying the Occurrence of Infection and the Recovery of the Animal Body from Infectious Disease. By Hans Zinsser, M.D., Professor of Bacteriology at the College of Physicians and Surgeons, Columbia University. With a Chapter on Colloids and Colloidal Reactions, by Professor Stewart W. Young, Department of Chemistry, Stanford University. Second edition. Cloth. Price $4.25. Pp. 585, with 30 illustrations. New York: The Macmillan Company, 1918.

The revision of this excellent work appears to have been a thorough one, especially of the chapters dealing with anaphylaxis, nonspecific serum and cell reactions, and specific therapy. The aim of the work is to present in detail the principles of the biology of infectious diseases, which must be mastered before these diseases can be studied and treated intelligently according to present practice, and this aim is accomplished in an altogether satisfactory way. The discussion of the origin of antibodies should be extended to include the results of the more recent work on this and related problems. That Sternberg was a pioneer in the study of phagocytosis should not be allowed to pass into oblivion. These and other shortcomings, none of which are in any sense of a serious nature, will be remedied easily when quieter days permit a more thorough and leisurely scrutiny of the literature.

WAR-TIME NERVES. By Herbert J. Hall, M.D. Boards. Price, $1 net. Pp. 119. Boston: Houghton, Mifflin Company, 1918.

This little book consists of fifteen more or less disconnected essays by the author of "The Untroubled Mind." The first is an effort to answer some interesting questions regarding the relation of the war to the individual. "How do men get into it and why, and what is the reaction on those who stay at home?" he asks. What is the effect on the minds of the participants of the tremendous world war through which we have just passed? The writer, a neurologist of many years' experience, has "seen into the lives of a number of men who have enlisted or who have been drafted, who have come back from the service or who are waiting to go." He has also studied the lives of those who stayed at home. The net result, he concludes, "is all, or mostly all, good; and the greatest change is in simplification and a new idealism. We no longer need so many things to make us happy. There is in the air a sense of relief even in the face of dread and danger. . . .

War, even to those at home, is such an all-pervading, penetrating matter. It gets into the most sluggish blood, it activates the most torpid brain, it makes men alive, it makes them think." Other chapters on moods and obsessions, practical patience, justification, the middle course, truth-telling in medicine, the medicine of the spirit, symbols, and sleep are equally interesting and reassuring. Some of Dr. Hall's observations are worth remembering: "A sanatorium is a place where people, who, for any reason, are not able to live successfully at home, may find special conditions which make health and happiness possible." "People who work for a living rarely understand the debt they owe to monotony." "He is a wise physician who can tell the truth without spoiling it and his patient."

PRÉCIS DE DERMATOLOGIE. Par J. Darier, Médecin de l'Hôpital Saint-Louis. Second edition. Cloth. Price, 18 francs. Pp. 864, with 195 illustrations. Paris: Masson et Cie, 1918.

Despite the war and its attendant demands on his time, Darier has been able to revise, and in many sections rewrite, his textbook on dermatology. To shorten the work as much as possible, he has dispensed with the bibliography, case histories, citations and academic discussions, and has limited himself to the essentials in descriptions, diagnosis and treatment of dermatoses. Much space is saved by the elimination of the customary chapters on the histologic and pathologic anatomy of the skin. The first part of the book classifies and discusses the dermatoses from the point of view of the fundamental pathologic process involved. In other words, the classification is made according to the essential lesions. The author admits that such a classification is open to many criticisms, but is of the opinion that it has advantages in the presentation of the subject to the beginner which far outweigh the disadvantages. In this opinion one may heartily concur. The second part discusses those diseases of the skin which may be considered morbid entities of definite etiology, and classifies them according to their nature and cause. No author has thus far evolved a classification of the dermatoses which is satisfactory to himself, much less to his colleagues, and every attempt at a classification is invariably criticized. Perhaps the one adopted by Darier is as clear and as workable as any other offered. Those diseases which have unknown etiologies, such as eczema, lichen planus and psoriasis, are not included in the second part, but are discussed in extenso in the first part, since the author considers them not as definite entities, but as pure syndromes. In this edition much new material has been added. Notwithstanding the high cost and the scarcity of paper, the publishers have maintained their standard of quality. A translation of this work into English should be welcomed by a large number of teachers and students of dermatology.

ON THE NATURE OF THINGS. By Hugh Woods, M.D., B.A., F.C.S. Cloth. Price, $2.50. Pp. 248. New York: William Wood & Co., 1918.

The author has taken as the title that of the poem by Lucretius written over 2,000 years ago in which the Roman poet and philosopher endeavored to set forth the ideas that prevailed in his day regarding matter, motion, space, light and time. Dr. Woods discusses such modern questions as heat, electricity, magnetism and chemical action. As he remarks in his preface, "Science has reared its structures, as builders erect towers, on foundations more or less solid, but without closely considering the exact nature of the foundations—how they were formed and from what." The rapid development of practically all branches of scientific knowledge has so enormously increased the amount that has to be learned in any one branch of science as to require a lifetime for the mastery even of a limited field, with the result that few men, however well advanced in the details of practical scientific work, have taken any time to familiarize themselves with the principles underlying all scientific knowledge. This is particularly true of physicians, in whose training instruction in both pure and applied science in physics, chemistry and biology is necessary. Very few physicians have ever given any attention to the fundamental principles underlying all scientific knowledge. Such a book as this, therefore, can be read with benefit by physicians, whether the author's views are accepted or not. Especially interesting is the chapter on chemical atoms and molecules in which is discussed the probable shapes of the atoms of the different elements and the influence of atomic form on chemical combinations. The chapter on light, which he regards as transverse ether waves, and electricity, which he considers to be longitudinal ether waves, is also illuminating and suggestive. The physician in the pursuit of technical professional knowledge has become far too narrow in his reading and thinking. Such books as the "Nature of Things" should be read by those physicians who desire to keep abreast of advancing scientific knowledge, and should result in a widening or our professional horizon.

## *Medicolegal*

### Power of Board of Health to Require Vaccination

(*State v. Martin et al; Brazil v. State (Ark.), 204 S. W. R. 622*)

The Supreme Court of Arkansas says that each of the two entitled causes involved the validity of a rule adopted by the state board of health, Dec. 3, 1917, and for that reason they were incorporated in one opinion. The first case it reverses and remands with directions to overrule a demurrer to the indictment of the defendants for permitting certain pupils in a school district to attend school without presenting a certificate from a licensed physician showing successful or recent vaccination, immunity from having had smallpox, or physical disability which might contraindicate vaccination, the demurrer being on the ground that the indictment did not charge a public offense against the defendants jointly or severally. In the second case the court affirms a conviction of defendant Brazil for sending his children to a school without presenting a certificate of vaccination or immunity from smallpox.

The court holds that there was no error in the fact that no proof was made in the Brazil case of the rule of the state board of health requiring a certificate of vaccination or immunity therefrom by pupils as a prerequiste to attendance on the school, as rules, orders and regulations made and promulgated by the state board of health will be judicially noticed by the court of the state. The court also holds against the contention in both cases that the board was not authorized by Act 96, Acts of 1913, to adopt and promulgate such a rule, because, while the board is not specifically authorized to supervise, control, suppress or prevent smallpox by isolation, quarantine or vaccination, or to adopt and promulgate any rule with reference to this particular disease, its isolation, control, suppression or prevention, the language of the statute is broad enough to include all diseases and all remedies, and specifically includes diseases that are infectious, contagious and communicable, and the power to prevent the entry into and spread of such diseases in this state. Moreover, while it is true that the board of health is not authorized to manage or control the schools of the state, either public or private, that power being conferred on other agencies, the prevention or spread of contagious or infectious diseases by preventing unvaccinated persons from associating with the schoolchildren and schoolteachers of the state in no way infringes on the constitutional right to attend the schools or the management and control thereof by schoolboards or directors. It would not be contended that parents and guardians could send their children to school unclad and unfed. Other reasonable health regulations are just as important as food and clothing. The mere fact that the will of the legislature is to be worked out through methods and details provided in rules and regulations to be adopted and promulgated by the board of health does not render the statute itself incomplete. The creation of boards of health for the purpose of preventing and controlling contagious diseases, and the right of the boards to adopt reasonable rules and regulations for that purpose, is not regarded generally as a delegation of legislative authority.

The necessity for, and reasonableness of, the regulations are largely within the judgment of the board. Every pre-

sumption is indulged in favor of the necessity of the rule, and courts will not interfere with acts of health authorities unless it is apparent that the rule is arbitrary. The existing conditions in the state at the time the rule was adopted warranted the adoption of such a rule, as it is commonly known that at that time smallpox was prevalent in the state, and that, unless preventive measures were adopted, a smallpox epidemic might result; besides, it was adopted during the period of the mobilization of the army quota of Arkansas, when soldiers were being transported in and out of the state in great numbers.

It is true that there is no American authority for compulsory vaccination in the sense of forcing one to submit his person thereto; but there is authority for penalizing one who refuses to comply with an order of law requiring vaccination. By reading the compulsory education act and the rule together, the net result is to enforce vaccination by penalty only. The act and rule can be read together so that both may stand, and should be read together, because it is quite clear that the legislature did not intend, in the passage of the compulsory education act, to repeal the health rule for preventing the spread of smallpox and other diseases.

### Roentgenographic Injury Due to Hypersensitive Skin

*(Hamilton v. Harris (Texas), 204 S. W. R. 450)*

The Court of Civil Appeals of Texas reverses a judgment for $2,500 damages that was rendered in favor of plaintiff Harris for personal injuries alleged to have been inflicted on him by the negligent application of roentgen rays to his body by defendant Hamilton for the purpose of treating eczema. The court says it was alleged that the defendant was negligent because he failed to protect, with a blanket of lead, or a composition of rubber and lead, the plaintiff's body from being burned, such protection being usual and customary; that the opening in the protecting blanket was too large; that the current applied by the defendant was too intense; that he exposed the plaintiff to the current for too long a time; and that he left the room in which the treatment was administered during the application of the roentgen rays, whereas he should have remained and watched the effect of the treatment. The defendant answerd by general demurrer, general denial, and specially alleged in defense that the injury to the plaintiff was caused by the peculiar condition of his skin, which was alleged to be hypersensitive to roentgen-ray current, and that this idiosyncrasy of the plaintiff's could not have been discovered by the defendant prior to the treatment. The fact was that the plaintiff was severely burned by a roentgen-ray current while being treated professionally by the defendant, who was a practicing physician and an expert in treating skin diseases with the roentgen ray. The controlling issue of fact made by the evidence was whether the injury was caused by one or more of the acts of negligence alleged by the plaintiff, or whether the injuries were suffered because the plaintiff's skin was hypersensitive to the roentgen-ray current. Naturally whether or not the plaintiff did in fact have a hypersensitive skin was an issue.

The defendant's first and second assignments of error assailed the trial judge's general charge because it did not affirmatively submit to the jury the defense that the proximate cause of the injury was the hypersensitive skin of the plaintiff. The charge defined "negligence" to be the failure to exercise "ordinary care," and further instructed to find for the plaintiff if the jury believed from the evidence that the defendant was negligent as alleged and believed evidence that the defendant was negligent as alleged and that such negligence was the proximate cause of the injuries; otherwise to find for the defendant. The defense of abnormal skin made by the defendant's pleading and evidence was not affirmatively submitted. It was contended by plaintiff's counsel that the affirmative submission of the defense would have been a charge on the weight of evidence, inasmuch as the question of the plaintiff's hypersensitive skin was involved in the question of whether the defendant was guilty of negligence, and that there was no evidence that the plaintiff actually had the idiosyncrasy asserted. But, if credited by the jury, the testimony of the defendant himself and of five other physicians, as well as that of a physician who was the plaintiff's witness, was sufficient to authorize the jury to find that the plaintiff did have a hypersensitive skin, and that this peculiarity was the proximate cause of the injury. The court does not think the affirmative submission desired by the defendant would have been a charge on the weight of the evidence. A physician is not required to take precaution against a peculiar temperament or abnormal idiosycrasy of which he has no knowledge and for detecting which there is no means. The evidence showed that the defendant did not know of the plaintiff's hypersensitiveness, and that there is no way to ascertain such a peculiarity prior to the treatment. The court thinks the jury should have been told in appropriate language that, if it believed the proximate cause of the injuries to the plaintiff was his abnormal hypersensitiveness, but for which the injury would not have occurred, a verdict should be returned for the defendant. Wherefore the assignments of error are sustained.

But another assignment of error, which complained because the judge refused to submit an issue of assumed risk, is overruled, as there was no evidence that would authorize such a charge. There was no evidence that the plaintiff knew or ought to have known that the roentgen-ray treatment was dangerous, because powerful and insidious.

### Use of Nonabsorbable Silk Sutures

*(Linn et al. v. Peirsol (Calif.), 173 Pac. R. 763)*

The District Court of Appeal of California, First District, reverses a judgment that was rendered in favor of Mrs. Linn in this action brought by her and her husband to recover damages for alleged malpractice. The court says that the defendant's main point on this appeal was that there was no showing of negligence on his part sufficient to warrant sending the case to the jury, and that therefore either his motion for nonsuit or his motion for a directed verdict should have been granted. The alleged negligence of the defendant, a physician, for which the plaintiff sought to recover, lay in the use by him in an operation of nonabsorbable silk sutures instead of catgut. The only testimony in the record to show that this was improper was contained in an answer to a single question propounded to a physician who was one of the plaintiff's witnesses, who testified that a careful surgeon would not use silk in the place where it had been used. On cross-examination he admitted, however, that, where a physician requires a ligature that will hold fast to prevent bleeding, he may with propriety use the silk, and he made it clear that his previous answer was based entirely on the conditions as he found them at an operation performed by himself six months after the operation by the defendant. The only other medical witness for the plaintiffs testified that the choice between silk and catgut is a matter of judgment in each particular case, and there was no testimony in the record to show that, under the conditions as they appeared to the defendant when he performed the operation, the use of silk was negligence. It appeared from the defendant's testimony that he had performed two operations on Mrs. Linn, that on the first occasion he had had trouble from hemorrhage as a result of the use of catgut, and that therefore he had used silk on the second occasion. It was true that the use of the nonabsorbable silk in the case at bar proved unfortunate, as the silk caused certain perforations of the intestine, which produced serious trouble; but it was clear that on the second operation the defendant was in a dilemma. The use of catgut had resulted in hemorrhage before, which he wished to guard against, and the use of silk might produce irritation. Under the circumstances, he should not be held liable for what was at most a mistake of judgment in weighing the probable consequences of the different methods that might be pursued. A physician is required to possess only ordinary skill in his profession and to use his best judgment in the exercise of that skill, and, if he complies with these requirements, he is not liable for the nonsuccess of his treatment. The defendant's motion for a new trial should have been granted, as the trial court's orders denying the motions for nonsuit and for directed verdict were erroneous.

# Society Proceedings

## JOINT MEETING OF THE CHICAGO MEDICAL AND CHICAGO PATHOLOGICAL SOCIETIES

*Held Feb. 12, 1919*

The President of the Chicago Pathological Society, DR. J. P. SIMONDS, in the Chair

DR. J. P. SIMONDS: Yellow fever is of international importance and has an international bearing, and because of that fact the International Health Board of the Rockefeller Foundation, largely at the suggestion of General Gorgas, appointed a yellow fever commission to go to South America to study sanitary conditions on the west coast of Ecuador, particularly about Guayaquil. The Chicago members of this commission were Drs. Arthur I. Kendall and Charles A. Elliott. Dr. Kendall was for two and a half years chief of the government laboratory in the Canal Zone and had much to do along with General Gorgas in eradicating yellow fever from the Canal Zone.

### National and International Relations of Sanitation in Ecuador

DR. ARTHUR I. KENDALL: Up to 1820, the vast majority of South American countries were under the subjugation of Spain. The United States has had in the past and will have in the future ever increasing interest in these countries. The greatest menace that these countries offer to the world at large is that which has to do with certain endemic diseases, and of these yellow fever and the plague are the most formidable. Yellow fever at present is endemic on the west coast of Africa and Guatemala, certain parts of Mexico, and the west coast of South America, south of Panama to the northern border of Chile, throughout the coast of the plain region, a distance of anywhere from 20 to 40 miles of the Andean plateau region. It is endemic on the east coast of South America, in Colombia, Venezuela, and possibly in the great land lying in the more western parts of Brazil. Yellow fever, therefore, is largely an American disease, and there are well authenticated histories of cases of yellow fever appearing as far north as New York and Philadelphia. In 1796 or thereabouts a rather extensive epidemic of yellow fever occurred in Philadelphia. Within the last few years New Orleans has suffered from yellow fever, and other southern cities at one time or another have been visited. In 1898 Havana, Cuba, enjoyed the somewhat doubtful honor of being called the pest hole of the American continent, and it was chiefly so regarded because of the prevalence of yellow fever there. In 1901 the last case of yellow fever occurred following the brilliant work of the American army. The mode of transmission of the disease was discovered by a commission headed by Major Walter Reed, and the practical measures suggested by General Gorgas (then Captain Gorgas) were put into effect. In October, 1906, the last case of yellow fever occurred on the Isthmus of Panama. As far as is known, there has never been a case since.

The great problem is to restrict the distribution of this disease until the time shall come when it will vanish from the face of the earth. Yellow fever is probably the easiest disease to conquer. The disease itself, so far as sanitation is concerned, spreads only in warm weather. It is transmitted exclusively through the agency of a particular mosquito, which enjoyed a large number of names prior to its discovery as the extrinsic host of yellow fever. The mosquito was known as the *Culex fasciatus* When it was found that this organism was responsible for the transmission of yellow fever from man to man, a little more careful scrutiny revealel the fact that the mosquito did not belong to the genus *Culex*, and a new genus, *Stegomyia*, was coined. Since that time the name has successively changed from *Stegomyia fasciata* to *Stegomyia calopus* and others.

The method of transmission of the organism of yellow fever appears to be very similar to that of *Plasmodium malariae*. The mode of transmission of malaria may serve as an illustration of the part the mosquito plays in the transmission of yellow fever, with which practitioners are familiar.

There is a latent period between the time the mosquito bites an individual and the time when that mosquito becomes infective for another individual. This period is roughly from ten days to two weeks. So far as is known, a similar cycle in point of time takes place in the transmission of yellow fever. The female mosquito bites patients with yellow fever, and then a period elapses during which that mosquito is quite unable to transmit the disease to another nonimmune host. This period coincides in point of time quite accurately with the period corresponding to the larvæ. There must be an extrinsic cycle in the mosquito which harbors the yellow fever organism quite as truly as there is an extrinsic period in the mosquito which harbors the malarial parasite. There is this difference between malaria and yellow fever: One attack of malaria by no means confers immunity or prevents infection. It predisposes to subsequent infection, or there is almost inevitably a series of relapses. It means that the individual infected with malaria may in successive intervals be a source of danger to other noninfected individuals. Yellow fever is a disease which allows the host to recover from the infection and to remain immune for all time. At least, this is so in the great majority of cases. Furthermore, the disease may be transmitted only during a particular interval, this interval elapsing between the time of the initial chill, which is quite common in yellow fever, and the period which is approximately seventy-two hours afterward. If this theory is correct, and experimental evidence suggests that it is, if every individual suffering from yellow fever should be screened and protected from mosquitoes at the time of the period just before the chill until the period of three or four days after the chill, yellow fever would cease to exist.

The methods of eradicating yellow fever are, first, to destroy the mosquitoes, which means the control of their breeding places, and also mosquitoes which are in the adult stage; to protect all febrile cases from the bites of mosquitoes during the three days or thereabouts in which persons may become infected, and finally to be certain that nonimmune individuals are kept out of unsafe areas. The method of exterminating mosquitoes is somewhat complicated in detail but simple in principle. It means careful drainage, inspection of all breeding places where the insects may grow, and the destruction of adult mosquitoes by fumigation.

The problem in Havana and in Panama for the extinction of yellow fever was somewhat different from that in South American countries, and particularly in Ecuador, where the work is now going on. In Panama and in Cuba the houses are, for the most part, of such construction that they can be fumigated quite readily, and one of the essential details of the elimination of yellow fever, as practiced in these places, was the careful fumigation of all of the houses at regular intervals in infected areas.

In Guayaquil, which is the principal point of infection at present, the structure of the houses is of such a nature as to render fumigation difficult. Earthquakes are common in Guayaquil; therefore the construction of buildings must be such as to safeguard the inhabitants from the danger of death by the collapse of buildings. The majority of the houses are made of frames which are joined in such a way that there is a certain amount of flexibility at the junction of the timbers, and these are covered with bamboo, which grows luxuriantly in the swamps, in the lowlands of Ecuador, and is of fairly large size.

Success in exterminating yellow fever and mosquitoes depends particularly on conducting operations quietly to prevent the mosquitoes from flying around. If unusual commotion is stirred up in placing these tents and putting them together, it will cause the mosquitoes to fly around. There is great probability that these mosquitoes fly from place to place; hence the question of fumigation is correspondingly complicated.

The mountaineers of Guayaquil are brought up in a country whose climate is much like our own. Yellow fever does not exist at the altitudes in which these mountaineers live; consequently they are quite as susceptible to the disease as

are persons from temperate zones. In the endemic areas the probability is that the children get yellow fever before they are many years old, and therefore the disease in the adults of the coastal plain region is practically unknown. People, however, from the mountains, who come to the coast seeking employment or to embark for other countries and pass through Guayaquil or the coastal provinces, may become infected, and the influx of people from the higher levels keeps yellow fever alive, in spite of the fact that the number of foreigners who visit Ecuador are few indeed.

Ecuador is handicapped, as are other countries in which yellow fever is endemic, in their commerce with the world. Ecuador is a wonderful country. It raises everything from the finest fruits of the tropics, to those that are characteristic of temperate zones. It is near Panama; and since the Panama Canal is now open, many ships are required to carry provisions; consequently the elimination of yellow fever from Ecuador will give to that country a new life. If the country fails to rid itself of yellow fever, it will probably become bankrupt, and revolutions are almost certain to follow.

The International Health Board has charged itself with the duty of helping in international sanitation, and one of the groups in the International Health Board is the Yellow Fever Board, of which General Gorgas is chairman.

Some years ago General Gorgas and other yellow fever experts made a trip through the infected areas of yellow fever in South America and made known the prevalence of the disease there, and as a result of their trip and their deliberations, it was decided that it is feasible and possible to eliminate yellow fever from the face of the globe. If this can be accomplished, and Ecuador can be freed from yellow fever, the United States will be regarded in an entirely different light from what it is today.

### Clinical and Pathologic Manifestations of Yellow Fever

Dr. Charles A. Elliott: Our clinical study was made in fifty consecutive cases of yellow fever. The histories elicited were fairly uniform. The first symptoms noted were a feeling of uneasiness, especially epigastric unrest, headache, backache, and aching of the extremities. Fever developed rapidly, often heralded by a chill or chilly sensations, which are frequently repeated. Nausea, and often vomiting, occurs repeatedly from the start, the latter usually bilious, although black vomit is noted by some of the patients as early as the second day. Fever, headache, backache, general muscular tenderness, and epigastric tenderness or pain, nausea and vomiting persist in various combinations until the admission of the patient to the hospital. A precipitous onset in uncomplicated cases, in which the patient gives a definite history of being well the day before the onset, is the rule.

In some patients who had been suffering from malaria for varying periods, a history of unusual symptoms, namely, sudden onset of nausea, vomiting, epigastric tenderness, headache, backache and persistent fever, was noted. This type of history of yellow fever developing during the course of malaria was present in four of thirty-nine cases in which reliable histories were obtained. In cases of this type the diagnosis was always uncertain until typical manifestations of yellow fever developed later, and most of these cases proved not to be yellow fever.

On admission the patient appeared restless and anxious, the face was flushed, the conjunctivae were injected, the gums were swollen, and they bled easily on pressure. Hemorrhages into the skin varying from 0.1 to several centimeters in diameter, usually irregular in outline, may occasionally be found on searching. Infected mosquito bites on the skin of the forearms or legs were frequently found. The mucous membrane of the mouth was congested. Herpes labialis was present in two cases. The lymphatic glands were not enlarged. The lungs were remarkable for being entirely free from findings expect during terminal hypostasis and pulmonary edema. The cardiac findings were usually negative. Occasionally a precordial systolic murmur was heard during the height of the disease, and rarely extrasystoles were noted. The abdomen was usually tender throughout, the epigastrium and liver edge being exquisitely tender. The liver was not definitely enlarged except in a few cases. The spleen was definitely enlarged only in those suspected of being malaria; it was not palpable in most of the pure yellow fever cases. Tenderness on pressure over the flanks was usually marked. The skeletal muscles were usually tender on pressure throughout the course of the disease.

During the second period of the disease the patients were relaxed, usually quiet, and appeared dried out, jaundiced, weak, and apparently very ill, but otherwise the physical findings remained about constant. The fever was relatively low, continuous, and of short duration. It reached its height on the first day, continued remarkably constant for three or four days, and then gradually dropped to normal by the fifth to the eighth day. The pulse was apt to be relatively slow during the fever course, showing a marked dissociation between the pulse and temperature curves at that time, although early and late, after the temperature has reached normal, the pulse follows the temperature curve. While a relative bradycardia of moderate degree is the rule, absolute bradycardia is unusual. A pulse of 50 or less was observed in only three of the series.

During the first few days of the disease the patient often complained of a sense of dyspnea, the only objective evidence of which was an occasional deep sighing respiration accompanied by a peculiar whistling expiratory note. Other than this, patients with light and moderately severe cases went through the entire course of the disease with apparently normal respirations. Jaundice was a constant, although variable manifestation in all cases. In general, it varied with the severity of the disease; in most light cases it was inconspicuous, although in some of these it appeared marked and out of proportion to the other manifestations of the diseas .

The blood shows little that is characteristic. The white blood count averaged about normal, with a definite leukopenia of less than 4,000 in only nine cases. The high counts, from 49,600 to 13,000, were obtained in moribund, usually uremic, patients; but it is noteworthy that some comatose patients gave normal white counts. The hemoglobin was universally low, but three estimations exceeded 90 per cent.; ten were between 80 and 90 per cent., and estimations between 40 and 60 per cent. were common. Nothing distinctive could be detected in the blood pressure determinations, except that it was uniformly low, systolic pressures of 110 or less, and diastolic pressures of 65 or less being the rule.

Hemorrhage contitutes one of the distinctive manifestations of yellow fever as seen in these cases. The principal structures which bleed are the nasal and gingival mucous membranes, and the gastro-intestinal and genito-urinary tracts. A history of early epistaxis was present on inquiry in seven cases. Extensive epistaxis occurred later, namely, on the fifth to the twelfth day in twelve cases. Melena was present in thirteen of thirty cases in which this point could be determined; and in three, large quantities of fresh blood were passed. In general, in all severe cases there was bleeding during the second and third week of the disease, and in the light cases no bleeding at all. The administration of horse serum in six cases had no perceptible effect on hemorrhage. The urine of all yellow fever patients was extremely highly colored, varying from a dark yellow to olive green, the foam being always yellow. The amount passed varied from an average of 700 c.c. to complete anuria, which usually foretold death. Albumin began to appear as a trace on the second or third day, rapidly increased to enormous amounts, 3 or 4 gm. per liter during the second week, and then gradually decreased and finally entirely disappeared during the third or fourth week. In light cases, albumin and casts were present out of proportion to the other manifestations of the disease. Uremia occurred as a terminal condition in all fatal cases. The majority of the patients harbored intestinal parasites in the stools. Complications and sequelae were unusual. Parotitis occurred in two cases, phlebitis in one, and acute joint phenomena, such as pain and swelling of sudden onset, in three cases. Restitution progressed rapidly in all patients that recovered, although some were weak and many showed varying grades of jaundice at the time of discharge.

The greatest stress was placed on the following diagnostic points in the order named: 1. The fact that the patient was a foreigner and not a native of Guayaquil, or had recently

arrived from the interior. The local physicians considered it practically impossible that a child born in Guayaquil should grow to maturity without having had yellow fever, and therefore was immune, and conversely, that a nonimmune adult could not live long in Guayaquil without having it. 2. A low, continuous fever course with relative bradycardia. A fever of 40 C. or over speaks against yellow fever. 3. Nausea and vomiting, black vomit being practically diagnostic. 4. Epigastric pain and tenderness, often intense from the first. 5. Rapid and progressive development of nephritis, albumin present as a trace on the second day, with from 1 to 3 gm. per liter on the fourth day. 6. Flushed and suffused face, injection of conjunctivae, and swollen and often bleeding gums. 7. The gradual and progressive development of jaundice, a trace seen on the conjunctivae as early as the third day.

The greatest difficulty occurred when yellow fever developed in those already infected with malaria. In children with yellow fever, as seen in this series of cases, the manifestations were the same as those in the adults.

In relation to the prognosis, it was difficult to foretell the gravity of a case. Those admitted early with much facial congestion, injection of the conjunctivae and swollen gums, who were restless and apprehensive, and showed some dyspnea, were considered as having the disease in very grave form, and usually died. Tachycardia is always considered grave. All uremic phenomena, such as air hunger, restlessness, delirium and coma, accompanied by a lessening of the output of the urine to anuria, were grave signs, although not always fatal.

Of the fifty patients in this series, nineteen died, a mortality rate of 38 per cent., which was considered about the usual rate in Guayaquil. The mortality rate of yellow fever of all patients admitted to the lazaretto from Jan. 1 to Aug. 1, 1918, was 44 per cent.

Little treatment was attempted beyond the employment of general principles applicable in all fevers. Little or no medication was given, and no conclusions can be based on our experience in this regard.

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## SOUTHERN MINNESOTA MEDICAL ASSOCIATION

*Annual Session, held at Mankato, Jan. 20 and 21, 1919*

The President, DR. M. S. HENDERSON, Rochester, in the Chair

### Some Old Hospitals of London: Treatment of Fistula in Ano and Hemorrhoids

DR. WILLIAM J. MAYO, Rochester: Among the most unique and interesting of the pioneer special hospitals of Great Britain is St. Mark's Hospital, founded in 1835, and built for the treatment of fistulas and other diseases of the rectum exclusively. It was here that the great Allinghams, father and son, worked and practiced the ligature operation for hemorrhoids. Fistula in ano has been well treated at St. Mark's Hospital for more than forty years.

Many years ago I was so fortunate as to become acquainted, by personal observation, with the methods introduced in St. Mark's Hospital for the repair of fistula in ano, and as a result, I can look back on a most satisfactory experience with this particularly annoying variety of infirmity. Goodsall pointed out that if a line was drawn transversely through the middle of the anus, all the fistulas lying anterior to that line would pass directly from the external skin opening to the internal opening inside the anal canal, and that all the fistulas posterior to that line would have their internal opening in the midline of the anal canal, posteriorly, no matter where or how many lateral openings, the so-called horseshoe fistulas, are present. In the anterior fistulas, therefore, the external opening will be found opposite the internal opening. An anterior horseshoe fistula, as Edwards remarks, is practically unknown. The cause of the curved or angular shape of the posterior fistulas, the external openings of which lie laterally and lead by a crooked passage to the internal opening posteriorly, is the arrangement of the coccygeal ligaments and muscles which protect the external tissues lying in the midline posteriorly and direct the pus laterally; the so-called horseshoe tracts and openings are thus formed. The treatment of the posterior fistula, which is the troublesome one, consists of carefully following the one or more external openings to the midline posteriorly where the fistulous tract leading to the internal opening just above the external sphincter will be readily exposed. At King's College Hospital, in 1862, Henry Smith originated the clamp and cautery treatment for hemorrhoids, a method we have used in hundreds of suitable cases with the utmost satisfaction. The hemorrhoid should not be trimmed away with the scissors, because, if the eschar pulls apart, the cut artery, which is most resistant, will bleed; the hemorrhoid should slowly be converted into an aseptic eschar protected by the desiccated tissues.

### Acute Mastoiditis

DR. JOSEPH D. LEWIS, Minneapolis: Mastoiditis develops when a preexisting suppuration of the middle ear extends to the mastoid cells. When confronted with an impending or actual acute aural suppuration, efforts are at once directed to measures which are intended to terminate the purulent condition of the middle ear and prevent a further extension of the process to the mastoid cells by a free incision (myringotomy). Mastoidectomy, performed before complications supervene, is attended with little risk, even when the sigmoid sinus and dura are uncovered for inspection, as the danger of infection is slight, provided the dura is not wounded at operation. When operation is delayed until thrombosis of the sigmoid sinus, meningitis or brain abscess develops, the mortality is high, despite prompt surgical intervention. If acute purulent otitis media is allowed to continue until the condition becomes chronic, making it necessary to perform a radical mastoidectomy, there may follow loss of hearing.

### Fractures Considered as Potential Deformities

DR. M. S. HENDERSON, Rochester: Following a fracture in the region of the shoulder joint, the common disability is lack of abduction and external rotation; in the region of the elbow, lack of flexion, and in the region of the wrist there is the well known dinner fork deformity, with inability firmly to close the fingers. A fracture in the hip is prone not to unite unless adequate fixation is provided after the reduction. A supracondylar fracture of the lower end of the femur or an epiphyseal separation interferes with the proper transmission of weight through the joint surfaces, and limits flexion and extension. Pott's fracture not infrequently causes disability by the valgus produced by poor alinement for weight bearing. If the type of deformity that is apt to follow the particular fracture being dealt with is kept in mind, and if it is recognized that the deformity is potential, better results will undoubtedly be obtained by so directing the treatment as to guard against poor alinement of the fracture.

### Open and Closed Treatment of Fractures

DR. ARCHA E. WILCOX, Minneapolis: Whichever method is used, it is obvious that the best results follow, first, a complete reduction of deformity of the fragments; second, holding the fragments in place; third, obtaining osseous union, and fourth, the restoration of function of the affected part. No simple fracture should be treated by any other than the closed method until repeated and untiring efforts are made to reduce the fracture, checked and rechecked by the roentgen ray or fluoroscope, have failed. The Lane plate has rapidly lost favor with most surgeons who do much bone work. I have removed many more than I have put in, and even many of those surgeons who still believe in the use of these plates, and apply them, advocate their routine removal. In only rare instances, for temporary fixation, would I recommend them. The bone graft and the Parham band have been extremely useful. The main advantage of the Parham band is that it does not injure the bone and rarely, if ever, has to be removed, and with the carrier which I have devised it is easily applied.

In certain oblique fractures of the tibia which are very troublesome, I apply an intramedullary graft, which we have designated the "submarine" graft. The graft is cut with the twin saw. It is shaped to fit the medullary cavity at the site

of fracture, and then replaced in the upper fragment and submerged into the medullary cavity and driven through the line of fracture into the distal fragment, the two fragments being held in a Lohman clamp. In three cases the clinical results apparently have been 100 per cent.

### Placenta Praevia and Abruptio Placentae

DR. M. J. JENSEN, Minneapolis: Placenta praevia can be considered in two groups: cases in which labor has not begun and those in which labor has already started. The cases in which bleeding begins before labor may be treated expectantly by absolute rest and sedatives. The indications for this treatment are largely in the interest of the child. If sedative treatment has been tried and hemorrhage recurs while labor is not yet started, and in a case of a single profuse hemorrhage, active measures are indicated at once. In every case of placenta praevia and accidental hemorrhage, the strictest precautions for asepsis and thorough preparation, as for any surgical operation, must be carried out. In a certain number of these cases, cesarean section should always be performed: first, in primigravidae and other cases with sufficient pelvic obstruction to prolong labor seriously; second, in cases with a rigid and undilatable cervix, in which the indications suggest a prolonged labor, and third, in most cases of placenta praevia centralis and placenta praevia complicated by eclampsia. In accidental hemorrhage the method which empties the uterus in the quickest time possible without producing shock or injuring the soft parts, dilatation, version and extraction, is the method. Cesarean section should never be done as a routine measure until the child is viable and the mother is a good surgical risk.

## *Current Medical Literature*

### AMERICAN

Titles marked with an asterisk (*) are abstracted below.

### Archives of Neurology and Psychiatry, Chicago

February, 1919, 1, No. 2

*Case of Occlusion of Posterior Inferior Cerebellar Artery with Cardiac Manifestations and Involvement of Left Vagus Nucleus. L. Hausman.—p. 145.
Eye and Aviation. W. H. Wilmer.—p. 162.
Id. E. R. Lewis.—p. 167.
*Focality of Microscopic Brain Lesions in Dementia Praecox. E. E. Southard.—p. 172.
*Histogenesis of Multiple Sclerosis. T. Klingman.—p. 193.
*Subacute Form of Multiple Sclerosis. W. G. Spiller.—p. 219.
*Unsuspected Involvement of Central Nervous System in Syphilis. P. Fildes, R. J. G. Parnell and H. B. Maitland.—p. 231.

**Cerebellar Artery Occlusion.**—The case reported by Hausman was one of occlusion of the left posterior inferior cerebellar artery with cardiac manifestations in a man of 48. The onset was gradual without loss of consciousness, but with a sense of giddiness, faintness and nausea, and a tendency to stagger occasionally to either side. This was followed a few days later by persistent hiccough and hoarseness. In view of the presence of glycosuria and a family history pointing in the same direction, diabetes, together with arteriosclerosis, was considered the etiologic factor. The symptoms resulting from this lesion embraced unilateral paralysis of the vocal cord and the left side of the face, with anesthesia of the pharynx and absent corneal reflex in the left eye; myosis of the left pupil and narrowing of the left palpebral fissure; peculiar response to the Bárány test; hemiataxy on the same side with alternate anesthesia of the left face and right side of the body. The sensory affection was of the dissociated type, pain and temperature sense being impaired, while tactile sensibility and muscular sense were intact. In addition, the patient presented an abnormal cardiac function. Various irregularities were manifested; bradycardia, auricular flutter, numerous extrasystoles and auricular fibrillation. Atropin administered over a long period was unable to influence the heart action in any way. With digitalis, however, a favorable reaction was immediately obtained. Hausman points out that the symptoms in this case, besides their value from a regional diagnostic point of view, have an important bearing on the relation of the vagus center to the cardiac cycle. It is this object which prompted a record of the case in detail.

**Microscopic Brain Lesions in Dementia Praecox.**—Southard discusses the idea of microlocalization, the antilocalizing views of psychologists, the anomalies in dementia praecox brains, makes a stratigraphical analysis of the cerebral cortex, and then points out the many effects of mental dissociation probably correlated with supracortical disease, the correlations of hallucinosis and catatonia with infracortical disease and the tendency to lobar and lobular focality of lesions. The microscopic data in four cases are presented under these heads, frontal, parietal and temporal. As far as the tissues of these four cases go, there is little or nothing inconsistent in the findings with the hypothesis that ordinary (nonphantastic) delusions are correlated with frontal rather than with otherwise situated lesions; but the supracortical type of delusions found in certain long-standing paranoiacs whose fine mental processes run in a quasi-normal manner, find no special correlation in any region, and the probable lines on which this problem is to be solved remain obscure.

As for auditory hallucinosis, the work seems to afford the expected correlation with temporal lesions. In one case, however, temporal lesions of considerable severity were not attended in life by hallucinations of hearing, but in this case there was also a severe supracortical disease of the temporal region, and it may be that for the production of hallucinations, some congress is necessary between the activation of the supracortex and infracortex, respectively. In previous work on this series, the brains had indicated a postcentral and superior parietal correlation for catatonia whose muscular hypertension was accordingly regarded as very possibly a kind of morbid kinesthesia. The present work suggests that the anatomic correlate is not merely to the postcentral and parietal regions, but still more specifically to the infracortical parts of these regions. Southard is in doubt whether these lesions are secondary in point of time to a noncell-destructive phase in the disease, or whether the lesions of which these microscopic effects are indicators began pari passu with the symptoms, that is, it remains a question whether it is a case of excess wear-and-tear process of cell mechanisms morbidly employed or whether the morbidity of neural function is an exact equivalent of the neuronic and neurologia morbidity.

**Histogenesis of Multiple Sclerosis.**—The four cases of multiple sclerosis on which Klingman's investigation is based were the usual cerebrospinal types. One patient died of acute mastoiditis; another died of pneumonia; one died in a convulsion and one from exhaustion following a number of epileptiform seizures. The average duration of the disease was ten years. All of the cases showed at necropsy a general adenitis with rather marked glandular enlargement in the bronchi and mesentery. One had healed tuberculous lesions in the left lung. The results of the examination of the brain and spinal cord of these patients are given in detail.

**Subacute Multiple Sclerosis.**—The patient who afforded the opportunity for Spiller's study was a male, aged 25. The symptoms began in February, 1915, with headache. In June, 1915, vision began to fail. In July, 1915, optic neuritis was observed. Weakness of the limbs developed gradually, with nystagmus, incoordination, vertigo, scanning speech, intention tremor and progressive impairment of gait until walking finally became impossible and mentality very feeble. Death occurred Dec. 21, 1916. Every section taken from any part of the cerebrum shows foci with lesions peculiar to this disease. The alteration in the cerebrum is very different from that in the spinal cord, and Spiller's findings confirm the statement of Marburg, namely, that cellular proliferation of glia is greater in the brain than in the spinal cord, and that the large glia cells are found more in the brain than in the spinal cord. The glia proliferation of the spinal cord is in large measure of the character of the overgrowth of glia seen in the replacement of nerve fibers from secondary degeneration caused by some lesion at a higher level; it is, therefore, chiefly fibrillar. In the cerebrum the glia proliferation

is of a different character, it is chiefly cellular and is more recent than that of the cord. Mental failure usually does not precede the other symptoms of multiple sclerosis, it occurs later in the disease and the lesions producing it must be of late development. In Spiller's case the mental failure became pronounced and it is explained by the extensive alteration of the cerebrum. Therefore, the earlier changes of multiple sclerosis occur in the cerebrum. The lesions are usually less numerous in the cerebellum. The changes in the cerebrum in the case recorded by Spiller were in overgrowth of the glia causing a microscopic picture resembling that of a glioma. The relation of the foci to blood vessels has been asserted by some investigators, disputed by others—Spiller was unable to establish.

**Syphilis of Nervous System.**—In a series of 624 unselected cases of syphilis in all stages of the disease studied by Fildes and his associates, 18 per cent. had ten cells or over per cubic centimeter and 12 per cent. had from five to nine cells, inclusive, per cubic centimeter in the cerebrospinal fluid. In 80 per cent. of cases which had abnormal cerebrospinal fluid there was no clinical sign nor symptom of nervous disease, although twenty-nine cases had over 100 cells per cubic centimeter, nine had over 300 cells per cubic centimeter, and three had 1,000 cells or over per cubic centimeter. Many of the other 20 per cent. had symptoms so slight that they were of uncertain value in pointing one to central nervous system involvement. It was possible to detect slight but definite early changes in the eye-grounds of many of the positive cases in this series. That the changes in the cerebrospinal fluid were due to syphilitic disease of the central nervous system was demonstrated by the increase of cells, mostly lymphocytes but occasionally a few polymorphonuclears by the presence of a positive Wassermann reaction in the fluid, and by the fact that *S. pallida* can be demonstrated in the cerebrospinal fluid. Previous treatment has had no effect on the number nor on the severity of the abnormalities in the series. Intravenous treatment with arsenical preparations, during the period of observation, restored some patients to normal conditions; in nearly all it had a beneficial effect, but in a few cases the pathological processes in the central nervous system had not been checked even by repeated courses of treatment. The authors insist that the examination of the cerebrospinal fluid is indicated in every case of syphilis.

## Arkansas Medical Society Journal, Little Rock

January, 1919, **15**, No. 8

Dangers of Mouth Infection. L. S. Johnson.—p. 141.
Avoided Subjects. C. H. Cargile.—p. 143.

## Boston Medical and Surgical Journal

Feb. 6, 1919, **180**, No. 6

Case of Anthrax Septicemia from Accidental Inoculation of Shaving Wound. R. W. Angevine.—p. 149.
Influenza Epidemic in Quebec, Canada. P. Sainte-Marie.—p. 150.
Case of Calculus Anuria. N. Finkelstein.—p. 151.

## Colorado Medicine, Denver

January, 1919, **16**, No. 1

Blood Transfusion. F. C. Buchtel.—p. 4.
Tuberculosis in Infancy and Childhood. E. Friedman.—p. 8.
Should General Practitioners Refer Patients to Opticians?. W. H. Crisp.—p. 16.

## Journal of Bacteriology, Baltimore

November, 1918, **3**, No. 6

*Ozena and Distemper: Comparative Study of Coccobacillus Foetidus-Ozaenae and Bacillus Bronchisepticus. N. S. Ferry and A. Noble.—p. 499.
Proteolytic Enzymes of Soil Fungi and Actinomycetes. S. A. Waksman.—p. 509.
*Efficiency of Present Standard Agar for Estimation of Bacteria in Milk. H. J. Sears and L. L. Case.—p. 531.
Sterilizing Measured Amounts of Water in Autoclave. H. A. Noyes.—p. 537.
Classification and Nomenclature of Bacteria: X. Subgroups and Genera of Myxobacteriales and Spirochaetales. R. E. Buchanan.—p. 541.
*Nature of Reaction of B. Coli on Endo Medium. R. I. Kahn.—p. 555.
*Differentiation of Lactose Fermenting Anaerobes from B. Coli. R. L. Kahn.—p. 561.

**Ozena and Distemper.**—According to the cultural reactions and the agglutination and complement fixation tests made by Ferry and Noble there appear to be no reasons why Perez' bacillus should be confused with *B. bronchisepticus.* The organisms can be differentiated from each other by any one of several methods. The results of Horn and Victor's work with the complement fixation test were not corroborated by Ferry and Noble.

**Standard Agar for Estimation of Bacteria in Milk.**—The conclusions reached in this investigation by Sears and Case are that the present standard agar is not in itself a favorable medium for the growth of certain types of bacteria occurring in milk. The small quantity of milk added to the medium in plating 1 c.c. of a 1:100 dilution supplies the deficiency, but the amount added in plating the higher dilution does not do so. More consistent results are obtained if the dilutions of the sample higher than 1:100 are made in sterile 1:100 milk instead of in sterile water.

**Simplified Confirmatory Test for B. Coli.**—It is suggested by Kahn that in the conformatory test for *B. coli,* Endo slants be employed instead of Endo plates, and that the inoculations from the lactose fermentation tubes be made in the butt as well as on the slant of the Endo tubes, to permit aerobic and anaerobic growth. In the case of unknown waters, inoculations should be made from the fermentation tubes into Endo tubes after about fifteen hours incubation, even if there be no gas present in the fermentation tubes at that time. The advantages of the proposed modifications are: (1) The production of more typical colonies of *B. coli* on the Endo slant than of the Endo plate; (2) the detection of aerobic and anaerobic growth in the same test; (3) Endo agar tubes can be kept for three to four weeks without deterioration; (4) the inoculation from the presumptive fermentation tubes to Endo agar tubes before the production of gas in the former will often save several days time in establishing the presence of *B. coli* in an unknown water.

**Differentiating Lactose Fermenting Anaerobes.**—Anaerobic lactose fermenting organisms found in waters of the Southeastern area of the United States, appear to be unable to produce gas when grown anaerobically in Endo medium. In accordance with this finding, the differentiation of anaerobes from *B. coli,* is accomplished by Kahn as follows: Straight wire inoculations are made from the lactose fermentation tube showing gas, into the butt and on the slant of Endo tubes. After incubation (1) *B. coli* produces typical or semi-typical colonies on the slant and gas in the butt. (2) Anaerobes neither grow on the slant nor produce gas in the butt of these tubes. Employing the same medium, another procedure for the differentiation of anaerobes is described, wherein plates are employed instead of tubes.

## Journal of Experimental Medicine, Baltimore

February, 1919, **29**, No. 2

*Blood Volume in Wounded Soldiers. Blood Volume and Related Blood Changes After Hemorrhage. O. H. Robertson and A. V. Bock.—p. 139.
*Id. Use of Forced Fluids by Alimentary Tract in Restoration of Blood Volume After Hemorrhage. O. H. Robertson and A. V. Bock.—p. 155.
*Influence of Ether Anesthesia, of Hemorrhage and of Plethora from Transfusion on Pressor Effect of Minute Quantities of Epinephrin. P. Rous and G. W. Wilson.—p. 173.
*Bacillus Egens. A New Pathogenic Anaerobe in Gas Gangrene. J. L. Stoddard.—p. 187.
*Spirochaeta Hebdomadis: Causative Agent of Seven-Day Fever (Nanukayami). Y. Ido, H. Ito and H. Wani.—p. 199.
*Use of Final Hydrogen Ion Concentration in Differentiation of Streptococcus Hemolyticus of Human Bovine Types. O. T. Avery and G. E. Cullen.—p. 215.

**Blood Volume in Wounded Soldiers.**—The study reported on by Robertson and Bock includes a series of twenty-one cases of hemorrhage. Blood volume tests were made in fourteen cases, and with one or two exceptions the tests were performed repeatedly. The patients were of two types: those suffering (*a*) from the late effects of primary hemorrhage and (*b*) from secondary blood loss. Infection was present in the majority of instances. Blood volume tests made by the vital red method (Keith, Rowntree and Geraghty) on patients

after hemorrhage showed a marked reduction in the total blood bulk. Not uncommonly the blood volume was less than 60 per cent. of the normal. The reduction after a certain point had been reached seemed to parallel the decrease in blood pressure. This relation of diminished blood volume to low pressure suggested a rough method of estimating blood volume from the change in blood pressure. By means of the blood volume and the hemoglobin percentage the actual amount of blood loss was determined. Cases of severe anemia showed a loss of as much as five sixths of the total hemoglobin. The effects of the different methods of transfusion and of injection of gum acacia on blood volume were negative. They restored the blood volume, only partially. Forced fluids by mouth brought about its complete restoration in a comparatively short time. The organisms did not restore its blood volume beyond a certain point when a further increase in it would, by dilution, have brought the hemoglobin percentage to a very low figure. In such cases a further increase of the blood volume occurred only when the hemoglobin rose. In cases with a low hemoglobin percentage as the result of a restoration of the blood bulk, an abnormally high blood pressure appeared, which continued until the hemoglobin percentage again increased.

Accompanying the low blood pressure seen shortly after hemorrhage was a well marked difference in hemoglobin per cent. between capillary and venous blood, with a relative concentration on the capillary side. As compensation occurred and blood pressure rose this difference lessened until the two readings were identical, indicating an even redistribution of the red blood cells. Reticulated red cell counts made in these cases showed that a marked bone marrow stimulation occurs after hemorrhage. The patients who were put on forced fluids, with consequent rapid restoration of blood volume, showed a much higher percentage of reticulated cells than those in whom no attempt was made to increase the amount of fluid in circulation.

**Restoring Blood Volume by Use of Forced Fluids.**—In many instances dilution of the blood occurs very slowly when the patient is recovering from hemorrhage. By putting such patients on a large fluid intake by mouth and rectum, Robertson and Bock found that their blood volume can be increased promptly and greatly. More than this, forcing fluids in cases where the amount of bleeding is difficult to estimate on account of the presence of a high hemoglobin percentage is of distinct value, since the dilution of the blood which results serves to show the extent of the hemorrhage through the drop in hemoglobin that it entails. With a total hemoglobin reduced to 25 per cent., or under, transfusion is needful. With the total hemoglobin above 25 per cent., the chief need is for increased blood volume, and if the patient's condition demands an immediate and large addition of circulating fluid, gum acacia solution should be given. If the condition is not so urgent, forced fluids by the alimentary tract are indicated.

**Pressor Effect of Epinephrin.**—Rous and Wilson found that ether anesthesia has a marked influence in diminishing the pressor response to minute amounts of epinephrin injected directly into the circulation. Hemorrhage also acts to lessen or abolish the response, and to a degree directly proportional to the lowering of the blood pressure it causes. In the exsanguinated animal an amount of epinephrin three or four times that sufficient to produce a pressure rise of 10 to 15 mm. of mercury, under normal conditions, may be entirely without effect. The response to large doses, on the other hand, is uninfluenced by ether or hemorrhage. These facts have a practical bearing not only on the employment of epinephrin to tide over collapse, but on its possible utilization in the future to raise a low blood pressure to the normal height and maintain it during a considerable period. The amount of epinephrin which under normal conditions will suffice to bring up the blood pressure may have little or no effect on an etherized individual or on one who has lost blood.

**Bacillus Egens Found in Gas Gangrene.**—The bacillus described by Stoddard occurred in a fatal case of gas gangrene, occurring in a wounded soldier. The cultures were derived from infected muscle at a considerable distance from the wound surface, and no other anaerobes were present in the muscle. The bacillus proved markedly pathogenic for guinea-pigs, producing extensive muscle lesions from which pure cultures of the bacillus were always obtained. Thus, in Stoddard's opinion, there is good proof that the bacillus found was the responsible agent in the fatal human case. Morphologically, the similarity of the bacillus to *B. welchii* is marked. Its cultural reactions are such, Stoddard says, that in a mixed culture with *B. welchii* it would escape notice, unless the most careful plating were done. When it has once been isolated however, it is culturally and pathologically distinct. Since the bacillus appears to be a new species, Stoddard has given it a new name. It differs from *B. welchii* by lack of fermentative powers; from *B. fallax* by lack of motility; from *B. oedemaciens* and other anaerobes by lack of spore formation and of proteolytic power. Therefore, the name "egens" has been chosen.

**Causative Agent of Seven Day Fever.**—The authors analyze twenty-six cases of seven day fever seen by them in which the *Spirochaeta hebdomadis* was found both in the blood and urine.

**Differentiation of Streptococcus Hemolyticus.**—The work done by Avery and Cullen showed that the hydrogen ion concentration at which the human strains of *S. hemolyticus* cease to grow is different from that which limits growth of hemolytic cultures from bovine sources. This study comprises 169 strains of *S. hemolyticus*, of which 124 were of human origin. In the majority of instances these organisms were isolated from the throats, sputum, blood and long lesions of men suffering from postmeasles bronchopneumonia, or from the throats of those intimately in contact with these patients during an epidemic of pneumonia at one of the camp hospitals. In addition, several strains of *S. hemolyticus* from erysipelas, postpartum sepsis, meningitis and cellulitis have been included. It appears that the final hydrogen ion concentration of human and bovine hemolytic streptococci is a constant and distinctive characteristic of these organisms. The human type of *S. hemolyticus* reaches a final hydrogen ion concentration of $p_H$ 5.2 to 5.0, and the bovine type of $p_H$ 4.5 to 4.3. By the method described, by the authors, 95 per cent. of all the strains examined were accurately and rapidly classified by the determination of their final hydrogen ion concentration in 1 per cent. glucose broth.

## Journal of Laboratory and Clinical Medicine, St. Louis

January, 1919, 4, No. 4

*War Deafness and Its Prevention. S. R. Guild.—p. 153.
*Decomposition of Arsphenamin. J. B. Rieger.—p. 181.
*Rôle of Tuberculosis in Dementia Praecox. H. I. Gosline—p. 186.
Modified Hecht-Gradwohl Test for Serum Diagnosis of Syphilis. W. J. Bruce.—p. 215.
A Simple Distilling Apparatus. A. L. Garbat.—p. 221.

**War Deafness and Its Prevention.**—Guild's previous articles on this subject were abstracted in THE JOURNAL, Oct. 27, 1917, p. 1472, Feb. 9, 1918, p. 418, and April 13, 1918, p. 1121. This paper describes the condition of the labyrinthine parts in the middle ears previously studied. Summarizing these articles from a practical viewpoint, these tests indicate that the measures tested may be divided into two definite groups on the basis of their efficiency in preventing the passage of the force of the detonation waves used; the variations within each group are less decisive. In the more efficient group are the Scientific Ear Drum Protector "Tommy," the Mallock-Armstrong Ear Defender, cotton soaked with glycerin, cotton soaked with petrolatum and the wax cone of the Italian navy type. In the less efficient group are dry cotton, the Elliott Perfect Ear Protector, and the Wilson-Michelson device.

**Decomposition of Arsphenamin.**—Rieger claims that commercial arsphenamin may contain an arseniureted methyl compound, which decomposes either in the ampule or in solution, with liberation of arsenous oxid or a cacodyl-like substance. Some preparations betray the presence of the arsine by their garlic-like odor when dissolved; others develop it only after having stood in solution for hours. According to the amount that may have accumulated, the dosage and the idiosyncrasy of the patient, a reaction marked by fall in blood

pressure, dyspnea and cyanosis may occur. Once the drug has been injected, the occurrence of subacute or chronic arsenic poisoning is determined by the margin that exists or may be made to exist between its elimination and its reduction by the tissues. There is evidence that this reduction to metallic arsenic occurs too readily for safety with present commercial preparations of arsphenamin. Rieger suggests that the preparation of a neo-arsphenamin without the use of methyl alcohol and a study of its therapeutic behavior would do much to prove or disprove the hypotheses advanced by him.

**Rôle of Tuberculosis in Dementia Praecox.**—This study is based on 108 cases which have come to necropsy. The cases were thoroughly reviewed by Gosline and all those were discarded which gave a history of alcohol, syphilis, or infectious disease coming on at the onset of mental signs, or which gave anatomic evidence of syphilis, or which mentally might be classed under any other category than dementia praecox, or in which there was some doubt as to the diagnosis. Discarding all doubtful cases, there were left thirty cases which were retained as a basis for this study. Of this number twenty-one persons died of tuberculosis of various organs, chiefly of the lungs. One died of pulmonary abscesses from which tubercle bacilli were discovered in the smear. These twenty-two cases thus make a percentage of 73.3 dying of tuberculosis. The thirty cases showed something more convincing as to the connection between them and tuberculosis than the mere incidence of death from tuberculosis. Seventeen cases, or 56.6 per cent., showed a connection so apparent that they are considered by some to belong to the toxic-infectious group. Thirteen cases showed a course which may in a fairly definite way be considered to be bound up with a clinical or anatomic tuberculosis. Tuberculosis was demonstrated anatomically in all of them and the anatomic picture was the one to be expected from the course of the mental picture, the physical signs, such as weight and the subjective symptoms, and from the temperature chart. Hence, it is evident that there is a definite group of cases of dementia praecox in which tuberculosis may be considered to be a causative factor and, possibly, the causative factor. Gosline suggests that special complement-fixation tests on the blood and spinal fluid and special cultural methods applied to such cases should yield a high percentage of positive results and give an added advantage in early diagnosis.

## Journal of Orthopedic Surgery, Boston

February, 1919, **1**, No. 2

Specialism and General Surgery. E. M. Little.—p. 63.
Changes Produced in Growing Bone After Injury to Epiphyseal Cartilage Plate. S. L. Haas.—p. 67. To be continued.
*Study of Buried Bone. J. F. Cowan and L. W. Ely.—p. 100.
Pseudocoxalgia Following Traumatic Dislocation of Hip in Boy Aged Four Years. R. C. Elmslie.—p. 109.
*Treatment of Chronic Osteomyelitis Due to Gunshot Injuries. C. F. Eikenbary.—p. 113.

**Study of Buried Bone.**—Numerous experiments are recorded by Cowan and Ely. It seems that a patella, or the fragment of another bone, imbedded fresh in the muscle of the animal from which it was removed, has a tendency to disappear, but does not do so for a long time. Its structure becomes less dense. The bone tissue itself may be replaced by fibrous tissue, especially at or near the circumference, or it may be absorbed. Absorption is the rule in the interior. Occasionally, typical rarefying osteitis by osteoclasts is seen. More frequently the process seems to be one of simple absorption, "halisteresis." The method of absorption is often difficult to determine, for about many of the trabeculae there are no giant cells, no leukocytic infiltration, and no increased vascularity of the marrow. Many of the cells disappear early from the bone. Others stain well after the expiration of a long time. Death of bone is the rule. A patella, with a complete investment of bone and cartilage, does not resist absorption better than a bone fragment whose marrow is exposed to the surrounding tissue. A blood supply is established in the marrow of the buried bone. The marrow has a tendency to become fatty and fibrous, though patches of lymphoid tissue may persist. It is engorged in animals who have died with an acute infectious disease, as is the marrow of normal bone in such circumstances. In other words, it is functioning as marrow. Cartilage becomes eroded at its surface, and is replaced by fibrous tissue. Sometimes it appears completely in areas. Its cells often stain well after a long time. Sometimes they die after a shorter time. The buttress underneath the cartilage almost always disappears early. Judging from appearances, the buried bone becomes smaller in size. Roughly, the changes in bone and cartilage are the same as those seen in arthritis of Type I, atrophic, or proliferative arthritis.

**Treatment of Chronic Gunshot Wound Osteomyelitis.**—A considerable number of these cases were treated by Eikenbary by open operation. He never uses the curet. The focus of disease is chiseled out and the wound is firmly packed with plain sterile gauze strips. No antiseptic gauze was ever used. At the end of twenty-four hours, the original packing is removed and the wound lightly packed with the same type of sterile gauze. Within a few days the packing merely extended through the soft parts. The whole aim of the operation is: (1) to get rid of all necrotic bone; (2) to avoid leaving any cavity at all; (3) to avoid spicules, rough areas, etc. Almost without exception, these cases healed within four weeks. Many were healed within three weeks, and in one instance healing was complete in two weeks.

## Journal of Urology, Baltimore

December, 1918, **2**, No. 6

Chart for Recording Cystoscopic Examinations. F. Hinman.—p. 433.
*Absorption from Renal Pelvis in Hydronephrosis Due to Permanent and Complete Occlusion of Ureter. J. E. Burns and E. O. Swartz.—p. 445.
*Use of Provocative Vaccine in Determining Cure of Gonorrheal Urethritis. G. H. Pearson.—p. 455.
*Remote Effects of Absorption of Urine from Colon: Case of Traumatic Unilateral Uretero-Intestinal Anastomosis. A. B. Cecil and R. S. Cummings.—p. 469.
*Absorption of Drugs and Poisons from Ureter and Pelvis of Kidney. D. I. Macht.—p. 481.

**Absorption from Renal Pelvis in Hydronephrosis.**—According to Burns and Swartz, absorption takes place from the renal pelvis after complete ligation of the ureter and in long-standing hydronephroses. The path of absorption is by way of the tubules and through the capillaries of the glomeruli. The rate of absorption is prolonged, especially in case of hydronephrosis. During the first twenty-four hours the rate of absorption is frequently the same in long-standing hydronephroses as in the acutely distended pelvis.

**Provocative Vaccine in Gonorrheal Urethritis.**—Two small doses of vaccine, on successive mornings, are given by Pearson. In none of his cases did the vaccine produce a general reaction nor was any discomfort caused to the patient and no complications followed its use. On the morning of the first day a dose of 3 million of polyvalent gonococcal vaccine is administered subcutaneously, and at the same time the seminal vesicles, prostate and Cowper's glands are massaged thoroughly to liberate any toxins confined in them. The patient is then instructed to hold his urine from midnight of that night until a smear is taken the next morning and to do the same for each successive night until four smears have been obtained. On the morning of the second day, a dose of 5 million of the vaccine is administered. Should the case still be infected with the gonococcus, a positive smear may be obtained on one of the four mornings. Should there be no infection with the gonococcus, the smear will remain negative for that organism. One hundred consecutive cases are tabulated. The provocative vaccine gave a reliable result in 96 per cent. of cases, but Pearson advises that it should not be relied on solely; it should be used in conjunction with other routine tests. Besides being valuable to determine when a patient is cured, it is useful to differentiate between specific and nonspecific urethritis. Its use renders unnecessary the irritation of the urethra produced by strong provocative injections of chemicals.

**Absorption of Urine from Colon.**—In the case studied by Cecil and Cummings uretero-intestinal anastomosis resulted from traumatism. Marked toxic symptoms resulted from the absorption of urine from the colon. Nephrectomy was followed by cure.

**Absorption of Drugs and Poisons from Ureter.**—Aconitin, cocain, apomorphin and potassium cyanid Macht found to be drugs or poisons that are absorbed easily through the walls of the ureter and the kidney pelvis. These findings are of some practical importance and should be borne in mind by the practical urologist inasmuch as various drugs such as silver compounds, thorium, etc., are introduced into these organs for diagnostic and therapeutic purposes.

## Laryngoscope, St. Louis

January, 1919, **29**, No. 1

Treatment of Laryngeal Stenosis by Corking Tracheotomic Cannula. C. Jackson.—p. 1.
Blood-Clot Dressing in Frontal Sinus Surgery. G. E. Davis.—p. 5.
Acute Retropharyngeal Abscesses in Children. J. M. Brown.—p. 9.
Spontaneous Recovery from Lateral Sinus Thrombosis. R. McKinney. —p. 13.
Vaccine Treatment of Ozena. H. A. Schatz.—p. 17.
Ozena. 1. Vaccinotherapy. 2. Results of Serologic, Antigenic and Food Anaphylactic Tests. M. S. Ersner.—p. 22.
Central Deafness. E. R. Carpenter.—p. 25.
Speech Elements in Tabes: Sign and Treatment. W. B. Swift and H. G. Beatty.—p. 28.
Negligent Speech. M. K. Scripture.—p. 31.
Rational Tonsil Surgery. W. W. Sauer.—p. 42.

## Medical Record, New York

Feb. 8, 1919, **95**, No. 6

Cancer: General Mechanical Principles. F. R. Cook.—p. 223.
Clinical Course and Prognosis of Pneumonias of Recent Epidemic. T. F. Reilly.—p. 229.
Historical Sketch on Death from Drowning. C. G. Cumston.—p. 232.
Surgery and Psychasthenia. W. P. Manton.—p. 236.
*Use of Calomel in Treatment of Spanish Influenza. W. L. Mann. —p. 238.

**Use of Calomel in Treatment of Influenza.**—During the recent epidemic some rather striking results were obtained by Mann from calomel therapy in a few cases that were indirectly under his supervision. After observing over 3,000 cases of the so-called "Spanish influenza," it appears to Mann that the disease is essentially a toxemia. Detoxication is one of the many functions of the liver. Acting on the assumption that the toxemia might be combated to some extent by stimulation of the hepatic function by mild doses of calomel, the following procedure was adopted as a routine: (1) Calomel, ¼ grain, give every half hour for six or eight doses, followed by a mild dose of magnesium sulphate in the morning, or if the patient was very ill, an enema was substituted. (2) Calomel, ⅒ grain, was then given four times a day for three or four days. In many cases where the fever tended to show secondary rises, or to remain high, the administration of 2 grains of calomel in fractional doses was repeated with rather good results. In some cases nausea is caused by these fractional doses of calomel and, if so, it should be discontinued temporarily although in many cases nausea and vomiting is one of the pronounced symptoms of the disease. The wards which first adopted this treatment presented a much better appearance and a lower mortality rate than the other wards. Also, since the adoption of this therapy as a routine, the ward medical officers are unanimous in their opinion that beneficial action has resulted from its use. The best results were obtained in the early treatment of cases by this method. The cases of influenza that had progressed for some days failed to respond to calomel as readily as the incipient cases.

## Missouri State Medical Association Journal, St. Louis

February, 1919, **16**, No. 2

*What Laboratory Can and Cannot Do in Diagnosis of Tuberculosis. R. B. H. Gradwohl.—p. 35.
*Myositis Ossificans Traumatica. T. G. Orr.—p. 44.
Ablatio Placentae; Case; Cesarean Section. W. H. Vogt.—p. 47.
*Effects of Use of Pneumatic Tools on Nervous System. F. M. Barnes, Jr.—p. 50.
Case of Linitis Plastica Hypertrophica (Gastric Cirrhosis-Leather Bottle Stomach). J. W. Ousley.—p. 53.

**Laboratory Diagnosis of Tuberculosis.**—The position of the laboratory in the diagnosis of tuberculosis is discussed by Gradwohl. He says that it is strikingly useful in such diagnosis; but that its usefulness is in direct proportion to the industry and intelligence of the clinician who uses it. In other words, it will serve well the physician who knows how to run down the focus when he has positive findings, and who knows how to weigh in the balance the negative results, that are inevitable in all specific microbic conditions at certain times and under certain conditions. The laboratory can aid the clinician in his diagnosis of tuberculosis of the upper respiratory tract, skin, joints, serous cavities, bones, digestive and genito-urinary system by means of the microscopic identification of the tubercle bacilli in sputum; its rare demonstration in pleuritic fluid, joint fluids, spinal fluid; its frequent demonstration in pus and discharges from the intestine; its occasional demonstration in the urine; better by animal inoculation in all but the pulmonary cases; by cultivation directly from sputum, and other tuberculous discharges from all points of infection by the Petroff method; by subcultures from lesions in inoculated animals; by blood cultures in the less common forms of acute miliary tuberculosis, and by complement fixation tests in tuberculosis anywhere in the body; likewise by tuberculin reactions of all classes of infection.

**Traumatic Myositis Ossificans.**—Abstracted in THE JOURNAL, June 15, 1918, p. 1889.

**Pneumatic Tool Effects on Nervous System.**—The case of the pneumatic hammer as used in the stone industry is the subject of Barnes' paper. Within the past two years complaints of ill effects from the use of the hammer have become prevalent in the Indiana belt. It has been claimed that the use of the hammer produced in the men a disease condition affecting the nervous system and leading even to paralysis, insanity or other form of complete incapacitation. So far as Barnes' study was concerned, the men using the pneumatic hammer in limestone were found to be in very good general health, none of the group examined showing any constitutional disease of any system, their troubles supposedly from the hammer being limited to a disturbance of the function of the left hand, which is commonly known as "white fingers" or "dead fingers." As a general rule, this condition occurs shortly after the men first go to work in the morning or until they have "warmed up." It occurs also during cold weather when the hands are exposed otherwise than in working. By swinging the arms or rubbing the hands the condition may be made to disappear, and when the hands are warmed the pallor rapidly gives place to diffuse flushing and reddening. Mental disease was not present in any subject examined, nor was there any physical disease which could, in any way, be attributed to the occupation.

## Modern Hospital, Chicago

January, 1919, **12**, No. 1

What Sick and Crippled Men Are Doing for Ford Motor Company. N. McLeod.—p. 1.
Hospital Construction: 1918 and After. S. S. Goldwater.—p. 4.
Heart of Hospital. A. S. Bacon.—p. 6.
How American Nurses Helped Win the War. J. A. Delano.—p. 7.
Dictaphone in the Hospital. F. E. Chapman.—p. 10.
Record System at Presbyterian (N. Y.) Hospital. A. V. S. Lambert. —p. 12.
Influenza in Shipyards. P. S. Doane.—p. 17.
Effect of Past Year's Events on Dietetics. L. Graves.—p. 19.
Time-Savers for Accounting and Laundry Departments. L. H. Burlingham.—p. 21.
Symmes-Arlington Nurses' Home. W. C. Hill.—p. 26.
Progress in Industrial Hygiene and Medicine During Year 1918. F. D. Patterson.—p. 31.
Hospital Accounting. C. A. Porter and H. K. Carter.—p. 34.

## New York Medical Journal

Feb. 1, 1919, **109**, No. 5

Prevention of Mental Defect. H. G. Matzinger.—p. 177.
Symptoms Caused by Granular Catarrhal Conjunctivitis. J. A. Kearney.—p. 181.
*Some After-the-War Problems of Medicine. I. S. Wile.—p. 182.
Influx of Venereal Diseases Through Merchant Marine. W. Moore. —p. 185.
Influenza Epidemic. A. A. Eshner.—p. 185.
Dogs and Cats as Source of Epidemic Coryza. H. H. Roberts.—p. 186.
*Dangers of Artificial Pneumothorax. B. Stivelman.—p. 187.
Pathological Conditions of Mouth and Their Treatment. C. J. Lyons.—p. 191.
Treatment of Craniocerebral and Cord Injuries of Warfare. C. G. Cumston.—p. 196.
Recent Gleanings Relative to Prophylaxis and Treatment of Influenza. L. T. de M. Sajous.—p. 198.

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Commentaries on Hippocrates. J. Wright.—p. 221.
Human Foot, Normal and Pathologic, Exclusive of Most Types of Congenital Defect. E. Smith.—p. 225.
Teaching Surgery by Moving Picture. W. O. Owen.—p. 229.
Methods of Teaching Medicine and Surgery by Cinematograph. R. T. Taylor.—p. 232.
Strangulated Inguinal Hernia in Infants. J. E. Fuld.—p. 233.
*Pathogenicity, Cultivation, and Reproduction of Protozoon Parasites. A. J. Hinkelmann.—p. 235.
Roentgenologic Diagnosis of Cholecystitis and Adhesions. L. J. Friedman.—p. 241.
Letterman General Hospital, San Francisco, Calif. L. C. Mudd.—p. 242.
Flight Surgeon and Flying Ambulance. Care of Flier Section. U. S. Army Regulations.—p. 244.
Prophylaxis and Treatment of Influenza. L. T. de M. Sajous.—p. 246.

**After-the-War Problems of Medicine.**—As Wile sees it, the after-the-war problems of medicine are those which tend to improve the organization of medical systems for developing public health and public health officers. Every physician of the future in his private capacity may attend individuals, but in his public capacity as a citizen doctor he will be an instrument to preserve the public health. All the problems that have developed from the war are those which contemplate making possible and tangible medical cooperation rather than individual competition. Attention is to be focused on the mass rather than on the unit. Private personal health will be appreciated as a constructive phase of public health. The medical profession, in contemplating the enormity and variety of its problem, has an opportunity to rise to a higher plane of activity and service than it has even known. Wile says that it is safe to conjecture that the opportunities will not be cast aside, nor will the end-results be dissonant with those claims for service which have been the basic principle of a profession that claims its origin in divinity and first functioned through a priesthood.

**Dangers of Artificial Pneumothorax.**—Stivelman claims that sudden collapse during the operation for artificial pneumothorax is very infrequently due to causes other than pleural shock. Air embolism, puncture of the heart and cocain poisoning are very rarely met with, and spontaneous pneumothorax, although it may occur, is easily diagnosticated and can usually be prevented. Pleural shock occurs as often after careful anesthetization of the pleura as when no anesthetic is used at all. It is impossible to foresee it. When it occurs in a severe form it may be fatal but in the vast majority of cases recovery occurs more or less promptly. Amblyopia, aphasia and other distressing symptoms subside very rapidly. Stivelman holds that attempts at refilling, according to Forlanini, are contraindicated if the attacks reappear in subsequent sittings.

**Pathogenicity of Protozoon Parasites.**—Fifteen cases of protozoon infection are reported by Hinkelmann. He claims that infection by the ameba, the balantidium coli, the cercomonas hominis and the organisms of the trichomonas group may become generalized through the entrance of the organism into the circulation, after which metastatic lesions in various parts of the body may result. The kidneys are especially prone to the infection, on account of their function in the process of elimination. Remnants, or whole and living organisms, may appear in the urine, and in the case of amebiasis this is a valuable diagnostic point. The metastatic lesions, especially in amebiasis, may be manifested directly and apparently as the primary condition. Protozoon parasites may be recovered alive and active from the blood through the method of hemolyzing freshly drawn blood with distilled water and centrifuging. The balantidium coli may be recovered from the blood in culture by placing the blood into sterile distilled water in the proportion of 1 c.c. of blood to 200 c.c. of water. Amebiasis may be suspected in all cases of obscure fever showing a striking difference between morning and evening temperatures, with the leukocyte count remain steadily at about 12,000, regardless of the presence or absence of diarrhea or any suggestive intestinal symptoms.

In semitropical countries, sudden pain in the abdomen with rigidity and fever is not always indicative of appendicitis, but may be caused by an abscess formation due to protozoon metastasis: especially if the leukocyte count rises above 12,000 and does not agree at all with the acuteness of the case. Chronic languor, pallor, emaciation with an eosinophilia and a stubborn constipation, many mean a swarming infection of the trichomonas intestinalis high up in the intestinal tract. Skin eruptions may be caused by protozoon invasion of the blood. These protozoon parasites appear, in varying degrees, to have everything in common. They act alone, or in conjunction with one another; and conditions which predispose an infection by one do so for the others as well. Immunity cannot be established, but a valuable amount of resistance appears in all individuals, which combats the invasion in the beginning. When this resistance becomes broken down, the case becomes chronic in some form or other; or the patient succumbs to an overwhelming proliferation of the invading organism, in an acute atack, depending on with which one of the group he has become infected.

## Public Health Journal, Toronto

January, 1919, **10**, No. 1

Immigration. A. H. Desloges.—p. 1.
Shell Shock. C. F. Tisdall.—p. 6.
Control of Cancer. G. R. White.—p. 13.
Winning Fights Against Autocracy, Alcohol and Anarchy. W. F. Crafts.—p. 25.

## Social Hygiene, New York

January, 1919, **5**, No. 1

Part of Peformatory Institution in Elimination of Prostitution. M. P. Falconer.—p. 1.
Need for Industrial Homes for Women. A. T. French.—p. 11.
Four Million Dollars for Fight Against Venereal Diseases. H. H. Moore.—p. 15.
Educational Prophylaxis of Venereal Diseases. H. E. Kleinschmidt.—p. 27.
Social Reasons for Medical Prophylaxis. W. Clarke.—p. 41.
Year's Progress in Venereal Disease Control. G. Seymour.—p. 49.
Social Hygiene Legislation in 1917. J. Mayer.—p. 67.
Law Enforcement Program Applied. F. J. Osborne.—p. 83.

## South Carolina Medical Association Journal, Greenville

January, 1919, **15**, No. 1

Annual Report State Health Officer. J. A. Hayne.—p. 335.
South Carolina Tuberculosis Sanatorium. E. Cooper.—p. 342.
State Board of Health Laboratory. J. R. Cain.—p. 343.
Influenza in South Carolina, 1918. C. V. Aiken.—p. 346.

## Southern Medical Journal, Birmingham

January, 1919, **12**, No. 1

Better Pediatrics in South. L. T. Royster.—p. 1.
Use of Duodenal Tube in Extreme Cases of Ulcerative Colitis. A. Bassler.—p. 4.
Typhoid Meningitis. M. D. Levy.—p. 7.
*Medical Treatment of Gall-Bladder Affections. G. M. Niles.—p. 10.
Our National Health in Peace and War. J. C. Johnson.—p. 15.
*Evils of Spit and Spitting in Spreading Disease. B. L. Taliaferro.—p. 18.
Antimalaria Control Measures in Extracantonment Zones. C. L. Williams.—p. 22.
Free Dental Clinics—Traveling Dental Service for Rural Schoolchildren Instituted by North Carolina State Board of Health. G. M. Cooper.—p. 28.
Modifications of Some Civil Surgical Practices Suggested by Surgery of War. W. J. Mayo.—p. 31.
Congenital Deformities of Spine. Report of Case. J. P. and E. H. Baird.—p. 35.
Pyelitis Complicating Pregnancy. H. S. Black.—p. 39.
*Suspension for Laryngeal Work. R. C. Lynch.—p. 42.
Treatment of Gonorrheal Conjunctivitis. A. B. Mason.—p. 44.
Our Old Friend Death. P. B. Barringer.—p. 48.

**Medical Treatment of Gallbladder Affections.**—For the constipation or irregular stools, the following combination has afforded much relief in Nile's experience: fluidextract senna, 2½ drams; aromatic fluid extract cascara, 2½ drams; fluid extract podophyllin, 1½ drams; sodium and potassium tartrate, 2½ drams; simple syrup, 7 drams. One teaspoonful is taken night and morning as needed. For the gastric flatulence, Niles recommends the following carminative prescription; compound spirits lavender, 2 drams; zinc sulphocarbolate, 15 grains; magmae magnesii, 2½ ounces; water, enough to make 4 ounces. One teaspoonful is taken after meals, and repeated as needed for gas. For the general toxic symptoms, due probably to the lack of normal bile in the

intestines, he has employed with satisfaction small doses of mercury protoiodid (1/10 to 1/8 grain), three times daily. Occasionally this drug produces intestinal cramps, or griping, so that the dose must be reduced, and in rare instances the teeth may become sensitive. As a biliary disinfectant, Niles has employed the following capsules: sodium succinate, 1½ drams; sodium salicylate, 1½ drams; sodium glycocholate, 45 grains; sodium taurocholate, 45 grains. Divide into sixty capsules and take two capsules three times daily, an hour and a half after meals, with a full glass of water. If the capsules are objectionable, the same ingredients may be dissolved in simple elixir, to which may be added a small amount either of compound spirits of lavender or of caramel. The polyvalent combined bacterial vaccines are sometimes worth while, but are not always dependable.

If the gastric secretions be markedly diminished and the duodenum become irritated, thus setting up a diarrhea, pancreatic preparations, liquor pancreaticus combined with alkalies, are of service. For the unpleasant itching there may be used ablutions with diluted vinegar, lemon juice, spirit of menthol or phenol. There also may be dusted on, the following powder: powdered camphor, 1½ drams; zinc oxid, ½ ounce; starch, 1 ounce. The diet should be free from irritating constituents, consisting principally of carbohydrates. But little fats should be permitted, and those easily emulsified, such as butter and milk. Other neutral fats cannot be cared for in the absence of a normal biliary flow; neither is it well to allow much meat, for excessive intestinal putrefactive processes may easily develop. Fruits, minus their rough or woody constituents, are generally advisable. The meals should be small, but frequent, and the general nutrition should be supported as far as possible. Hydrotherapy, when intelligently administered, is a valuable adjunct.

**Evils of Spit and Spitting in Spreading Disease.**—Taliaferro outlines what he terms a "catechism" on "spray borne diseases," and suggests that schoolchildren be taught thoroughly on this subject on the basis: "Teach the child and you teach the whole family." Taliaferro claims that 386,030 deaths occur annually from spray borne diseases.

**Suspension for Laryngeal Work.**—Lynch has the patient lie flat on the table with the head extended. The mouth is opened wide by placing an ordinary mouth gag in the left angle of the mouth; and this is steadied by the assistant who has only to keep the head extended in the middle line, there being no need of support, since the head is resting on the table.

## Southwest Journal of Medicine and Surgery, El Reno

January, 1919, **27**, No. 1

Reclaiming Disabled Industrial Soldiers. H. E. Mock.—p. 1.
Vocational Education. Q. D. Corley.—p. 7.
Influenza as Public Health Problem. J. W. Duke.—p. 11.

## Southwestern Medicine, El Paso

January, 1919, **2**, No. 13

Medical Treatment of Acute Follicular Tonsillitis. J. M. Britton. —p. 3.

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### FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

## British Journal of Children's Diseases, London

Oct.-Dec., 1918, **15**, No. 178-180

*Ruptured Aortic Aneurysms in Childhood; Report of Case. E. Bronson and G. A. Sutherland.—p. 241.
"Food Deficiency" or "Vitamin" Theory in Its Application to Infantile Beri-Beri. F. M. R. Walshe.—p. 258.
*Abnormal Naughtiness in Normal Children. J. Thomson.—p. 269.
*Case of Muscular Spasm in Child. R. C. Jewesbury.—p. 269.

**Ruptured Aortic Aneurysms in Childhood.**—A case is recorded by Bronson and Sutherland in which death was due to the rupture of a fusiform aneurysm of the ascending arch of the thoracic aorta in a child, aged about 6 years. The aneurysm apparently followed a partial stenosis of the aorta between the insertion of the ductus arteriosus and the left subclavian artery. That this stricture was a congenital anomaly was supported by the presence of a diaphragmatic hernia, subluxation of the joints, and defective cranial development. A brief discussion of the etiology of aneurysms in children is given. From the literature are summarized two instances of aneurysmal dilatation due to partial stenosis of the thoracic aorta, also five cases of aneurysms apparently due to congenital anomalies in the structure of the ductus arteriosus. In two of the latter cases, rupture caused death. Also on record are seven reports of death following rupture of aneurysms of the thoracic aorta in children, one case of rupture of the aorta without aneurysm, and two cases of rupture of aneurysms of the abdominal aorta.

**Abnormal Naughtiness in Children.**—A morbid exaggeration and perversion of the natural desire which all children feel for notice by their elders, is held by Thomson to be the cause of abnormal naughtiness in children. These cases are of essentially the same nature as those of "moral imbecility" in children who are in some degree mentally defective. The proper lines of treatment are clear enough, and when carried out consistently and thoroughly are rapidly and completely successful. They may be summarized as follows: (1) All severe corporeal punishment must be stopped—it never does any good. (2) Nobody must ever appear shocked, amused or even surprised at anything a child does. (3) His misdeeds are never to be alluded to, much less described, in his presence; and, lastly, he should be noticed and encouraged in every way when he is good and altogether ignored when he is naughty.

**Case of Muscular Spasm in Child.**—At the age of seven Jewesbury's patient began to suffer from weakness and wasting in the muscles of both legs. This condition gradually progressed, and she developed such a marked degree of talipes equinovarus that double tenotomy of the tendo Achillis was performed. The condition gradually recurred and the legs became very stiff when she attempted to use them, and walking became exceedingly difficult. Subsequently, about eighteen months after the legs began to be affected, she developed a similar loss of power with stiffness in the muscles of both arms and hands, and also in the muscles of the neck and spine. Any attempt to carry out a definite movement with the arms was made in a jerky way, rather like a child suffering from chorea. In grasping any object all the voluntary muscles of the body were thrown into a state of spasm. She appeared to have a certain amount of control over this spasm, and it was always much more marked when she was at all excited or agitated. She also had a persistent torticollis with a certain amount of spasm of the spinal muscles. The facial muscles were unaffected. No tremors or athetosis were present. The reflexes, both superficial and deep, were all normal; the knee jerks were only difficult to obtain when the muscles were in a state of spasm. The plantar reflex was flexor on both sides. The cranial nerves were normal. Sensation was unaffected. The blood gave a negative Wassermann test. The case seems to be an example of "dystonia musculorum deformans" (Oppenheim) or "progressive torsion spasm of childhood."

## British Medical Journal, London

Jan. 18, 1919, **1**, No. 3029

*Climacteric of Life. G. Rankin.—p. 63.
*Bone Grafting in Ununited Fractures of Mandible. P. P. Cole.—p. 67.
Pelvic Measurement in Ante-Natal Clinics. A. W. Bourne.—p. 70.
Case of Traumatic Primary Sarcoma of Prostate. D. Newman.—p. 71.

**Climacteric in Men.**—Attention is directed by Rankin to the fact that while the climacteric period is a well recognized event in women, it is not so generally appreciated that men go through a similar readjustment of tissues, though after a less dramatic method, and probably at a somewhat later age, from seven to ten years later. A similar liability to the awakening of latent proclivities exists, and there would seem to be, at that period, as in women, an upset of tissue equilibrium conducive to the establishment of pathologic conditions. The immediate counterpart in man of the ovarian changes in women is probably to be found in the structural alterations which then become established in the prostate gland. Acute illness occurring within the limits of this critical time is attended with more than average risk, the

protective powers of the body being just then apparently less able to resist germ or toxemic invasion. Among the many ailments that may assert themselves at the climacteric, three are selected by Rankin as commonly met with in men and three as more usually encountered in women. The conditions among the men are arteriosclerosis, interstitial nephritis, and diabetes; among the women—colitis, rheumatoid arthritis and hyperthyroidism. Illustrative cases are cited.

**Bone Grafting in Ununited Fractures of Mandible.**—This method of using a sliding bone graft taken from the jaw itself was described in THE JOURNAL, May 11, 1918, p. 1400.

## Dublin Medical Journal

January, 1919, **147**, No. 565

Poisoning by Mustard Gas; Clinical Results. T. Gillman Moorhead. —p. 1.
Id.; Pathological Changes. W. Boxwell.—p. 7.
Aids to Medical Diagnosis. A. Whiting.—p. 14.
Clinical Case-Taking. R. D. Keith.—p. 14.
Gynecology. W. P. Graves.—p. 16.
An International System of Ophthalmic Practice. W. J. Pyle.—p. 18.
Twin Ideals: an Educated Commonwealth. J. W. Barrett.—p. 19.
Diseases of Children. G. M. Tuttle.—p. 21.
Local and Regional Anesthesia. C. W. Allen.—p. 22.
War Wounds of the Lung. P. Duval.—p. 23.
Glaucoma. R. H. Elliot.—p. 28.

## Edinburgh Medical Journal

January, 1919, **22**, No. 1

*Wound Treatment by Living Cultures of Proteolytic Spore-Bearing Anaerobe Introduced into Wound. R. Donaldson.—p. 3.
Income Tax Information. J. Burns.—p. 35.

**Wound Treatment with Bacteria Culture.**—The fact that all successfully treated salt-bag wounds emitted a strong offensive odor, which was completely absent from other cases, led Donaldson to investigate the anaerobic bacteria present in wounds undergoing successful salt-pack treatment. The first case from which he made cultures yielded a mixture of two spore-bearing anaerobes which he ultimately succeeded in separating. One of these organisms possessed round terminal spores, the other oval subterminal ones. Pure cultures of the latter, grown for two or three days in cooked meat medium, developed the same peculiar odor which characterized successful salt-packed wounds. Further investigation of a series of cases so treated showed that this bacillus was present in all cases that were doing well and smelling, but that it was invariably absent from those cases which were making no progress. It established the fact that this particular odor might be regarded as an indicator of the success of the salt packs in any given case. Donaldson names the organism thus isolated, the "Reading bacillus." It is closely related to the *B. sporogenes* of Metchnikoff. Donaldson believes that this bacillus plays an important rôle in the healing of wounds because it disintegrates not only sloughs but also toxins of protein composition by means of an enzyme or enzymes which it produces. The enzyme is of the nature of a protease and can be demonstrated in filtrates obtained from broth cultures of the organism.

To prove the correctness of this theory a suitable gunshot wound was sowed liberally with a living culture of the bacillus, after which the wound was immediately repacked in the usual way. In three days time the patient's temperature had come down, the wound was emitting the characteristic foul odor associated with the active proliferation of the Reading bacillus and the patient was comfortable. The packing was left in situ untouched for some days, and within a day or two of its removal the wound was found to be absolutely clean, devoid of all sloughs, a brilliant scarlet color like fresh raw beef, and covered with healthly granulations. Since then, wounds of various kinds, such as septic knee joints, etc., have been sown, always with successful results and never with any ill effects. The advantages claimed for this method of wound treatment include: Simplicity of application, the avoidance of daily dressing and daily disturbance of the wound, the rapidity with which a sloughy wound becomes a healthy granulating surface, the absence of secondary hemorrhage, together with the remarkable and speedy improvement which takes place in the general condition of the patient, all of which mean considerable curtailment of the time generally spent by a wounded man in hospital.

## Glasgow Medical Journal

January, 1919, **91**, No. 1

History of Influenza. W. R. Jack.—p. 1.
*Use of Moro's Percutaneous Inunction Test, and Von Pirquet's Cuti-Reaction Test. J. W. Allan.—p. 25. Concluded.

**Moro and von Pirquet Tuberculosis Tests.**—These tests are regarded by Allan as being helpful aids to diagnosis; nothing more. They have the advantage that they may be used without fear of doing harm.

## Journal of Tropical Medicine and Hygiene, London

Jan. 1, 1919, **22**, No. 1

Case of Acute Appendicitis in Native of Africa. H. W. L. Waller. —p. 1.
Filarial Infections in Gilbert and Ellice Islands. J. G. McNaughton. —p. 1.
*Quinin Administration. R. Howard.—p. 2.

**Treatment of Malaria with Quinin Hydrochlorid.**—For twenty years Howard has used the hydrochlorid and bihydrochlorid of quinin in the treatment of malaria. For routine prophylaxis he uses the hydrochlorid, either in tablet form or in solution, in which case he usually adds 1 minim of dilute hydrochloric acid to each grain of quinin to convert it into the bihydrochlorid. For the treatment of definite malarial pyrexia, he uses the bihydrochlorid. If a patient is very susceptible to quinin and complains much of tinnitus, this may sometimes be decreased by giving a few minims of dilute hydrobromic acid at the same time as the quinin. In the treatment of native infants with malaria, the tannate of quinin, given as a powder, in relatively large doses, has proved satisfactory.

## Lancet, London

Jan. 18, 1919, **1**, No. 3

*Examination of Vermiform Appendix by Roentgen Rays. E. I. Spriggs and O. A. Marxer.—p. 91.
*Acute Appendicitis and Acute Appendicular Obstruction. S. T. Irwin. —p. 98.
*Control of Upper Fragment in High Fractures of Femur and Humerus by New Form of Splint. J. R. Lee.—p. 103.
*Meningococcus Broncho-Pneumonia in Influenza. W. Fletcher.—p. 104.
*Apparent Immunity from Influenza at Public School. G. E. Friend. —p. 105.
*Case of Pericardiotomy. T. P. Noble and A. B. Vire.—p. 107.
*Molybdenotungsten Arc in Treatment of Suppurative Lesions. B. M. Young.—p. 108.
Plastic Vocal Cord. F. N. Smith.—p. 108.

**Examination of Vermiform Appendix by Roentgen Rays.**—An account is given of the methods and manipulations which have been found useful in the roentgen examination of 300 appendices. Details are given of thirty-six cases in which the roentgenologist's reports are compared with the operative findings. In all of these cases the diagnosis was verified at the operation.

**Acute Appendicitis and Acute Appendicular Obstruction.**—The results following 131 consecutive urgent operations for acute disease of the apendix are analyzed by Irwin. This list of cases includes operations performed in the most unpromising surgical surroundings, both in respect of the operation itself and of the subsequent nursing, though there seems to be often more risk in the removal of a patient in certain types of the disease than in operating where few facilities are at hand and many things must be improvised. Out of the 131 cases, eighty-four had already gone to suppuration. All excepting one, and that one already perforated, were operated on as soon as seen. There were eighty-nine cases of acute appendicular obstruction, of which ten showed obstruction only, eighteen showed obstruction with a varying amount of gangrene of the wall, and in fifty-nine rupture of the appendix had followed the gangrene. In the obstructive cases it is Irwin's contention that the primary cause of the disease is obstruction of the lumen of the appendix. On examination of the appendixes removed at operation it was found that obstruction may be due to one of five causes: (1) concretions (fifty cases); (2) strictures (six cases); (3) kinks (rare); (4) bands; (5) worms, fruit seeds, and other foreign bodies.

**Control of Upper Fracture Fragment.**—Lee describes a pelvic-femur splint and a thorax-arm splint which he has used successfully in cases of fracture of the femur and humerus.

**Meningococcus Bronchopneumonia in Influenza.**—In the postmortem examination of thirty-six men who had died from bronchopneumonia following influenza, gram-negative cocci were the predominant organisms found by Fletcher in the lungs of eleven cases. All the men, with one exception, had been taken ill on board the same transport. In six cases these gram-negative cocci were Type II meningococci and in one case they belonged to Type I. In four instances the cocci were not tested by agglutination. In each of the eleven cases Pfeiffer's bacillus was found in symbiosis with the gram-negative cocci. It is evident that the meningococcus, like other "respiratory" organisms, may, when it occurs in conjunction with Pfeiffer's bacillus, produce a fatal bronchopneumonia.

**Apparent Immunity from Influenza at Public School.**—Quarantine, the Ormeston nasal drill and the use of a prophylactic vaccine were the methods used by Friend.

**Case of Pericardiotomy.**—Pericardiotomy was performed by Noble and Vine on the twelfth day after passage of a rifle bullet through the chest, with recovery of the patient.

**Molybdenotungsten Arc in Treatment of Suppurative Lesions.**—The cases selected by Young for treatment were chiefly those which were of considerable duration and which showed little or no improvement obtained by previous methods of treatment. The exposure given was generally three minutes at a distance of 50 cm. from the arc. In practically all cases the dressings used were gauze damped with sterile water; in a few cases normal saline was used. This was adopted as it was desirable to eliminate any cause of improvement, or the reverse, other than the effects of the ultraviolet rays produced by this arc. In the acute lesions, frost-bite, carbuncles, large areas of inflamed and ulcerated skin responded readily. In thirty-eight cases of generalized sores many were healed more speedily by this method of treatmnt. Cases of bubo which had been incised were treated from the outset with daily exposures of three minutes, and each healed in eight days, leaving a narrow healthy linear scar, comparing favorably with cases treated in the usual way. The lamp employed is the "meridian" automatic feed arc fitted with the new molybdenotungsten electrodes. It is connected in the usual manner with the ordinary house supply, and is a suitable contrivance for all voltages above 100 volts, both direct and alternating current.

## Annales de Médecine, Paris

December, 1918, **5**, No. 5

Influenza among Young Recruits. A. Gouget.—p. 417.
*Surgery in Diabetics. M. Labbé.—p. 428.
*Embryonal Tumors in Kidney Region. R. Lutembacher.—p. 435.
*Skin Reactions to Tuberculin, etc., G. Delamare.—p. 451.
*High Sugar Content of Spinal Fluid Outside of Diabetes. M. P. Weil.—p. 463.

**Surgery for Diabetics.**—Labbé declares that while it is advisable to refrain from operations on diabetics, especially when there is acidosis, yet it is better to operate than to let the patient die from septicemia or from the acidosis which it induces. When possible, the operation should be preceded by measures to reduce the hyperglycemia and the acidosis. This can be accomplished by a mixed diet with little meat and not much carbohydrates, if the patient does not exhibit acidosis. If there is acidosis, the diet must be restricted to dried vegetables or oatmeal or milk. Sodium bicarbonate should be given in sufficient amounts to render the urine alkaline. Another precaution is to refrain from imposing the usual fast just before the operation. It might be well besides to give 40 gm. of sodium bicarbonate before. The choice of the anesthetic is extremely important. Local anesthesia should be preferred; if this is not possible the next choice is spinal anesthesia. If a general anesthesia is necessary, ethyl chlorid should be the choice; chloroform or ether should never be used on a diabetic with acidosis. After the operation, enough sodium bicarbonate should be given to render the urine alkaline. It can be given by the mouth or by the vein. If there are evidences of severe acidosis, fully 100 gm. of sodium bicarbonate should be incorporated. As soon as nourishment can be taken, vegetable broth should be given or oatmeal gruel, soft mashed peas or beans or milk. The alkaline treatment should be continued until the acidosis has disappeared.

**Tumors of Embryonic Type in Kidney Region.**—Lutembacher comments on the strange succession of organs in the kidney region in the course of embryonal development, a succession of transformations which explain the frequency and the variety of tumors in this area. A case is described with twenty-five illustrations in which a woman of 36, exceptionally robust, suddenly developed severe dyspnea, the result of a left pneumothorax which spread to both lungs and proved fatal. The pneumothorax was the result of the bursting of numerous emphysema vesicles in the lungs, and there was also embolism of sarcomatous tissue. The cancerous emboli were traced to a number of renal tumors of embryonic type, each one suggesting that it was a lobe of the kidney which had been arrested in its growth. The spleen was also involved.

**Skin Reactions.**—Delamare has been studying the reaction induced by application of the skin tuberculin test, and also tests with plain horse serum, diphtheria antitoxin, and vaccines against typhoid and cholera. He was unable to detect any relation between the intensity of the reaction and the greater or less activity of the tuberculous process in the 300 tuberculous tested with the tuberculin skin test. The tendency to reactivation displayed by some old healed processes under the influence of the skin tuberculin test suggests that the cutaneous reaction is not altogether and simply a local process. Plain horse serum induced a reaction in the six tuberculous given the test. There were five positive reactions in ten tuberculous tested with diphtheria antitoxin, and in thirty-eight of thirty-nine tested with antityphoid vaccine and in ten of ten tested with anticholera vaccine. These reactions all differed essentially from the reaction to the skin tuberculin test.

**Sugar in the Spinal Fluid.**—Weil is inclined to attribute more importance to the sugar content of the cerebrospinal fluid than to any other element in it, as this reveals changes which otherwise might be overlooked. He says that the Bertrand technic for determination of the sugar content is reliable; applied to different specimens of the same individual fluid it gave him absolutely concordant results. It is based on the transformation of ferric sulphate into ferrous sulphate after it has been acted on by the precipitate of cuprous oxid resulting from reduction of the sugar by Fehling's reagent. The reoxidation of the ferrous sulphate into ferric sulphate is obtained with potassium permanganate. The technic is described in detail. In the spinal fluid from twenty-eight normal persons, the sugar content ranged from 0.42 to 0.60 gm. per liter. The normal average seems to be thus about 0.50 gm. When it is above this range, Weil calls the condition hyperglycorachy, and analyzes extensive experiences which indicate that this condition follows lesions or derangement of the peripheral motor or sensory neurons, in war neuroses, in shell shock, in epilepsy, etc. He theorizes to explain it as the result of congestion and of irritation of the sugar regulating ganglion in the floor of the fourth ventricle. With simple congestion of the meninges, the sugar content is increased, while it is decreased when there is bacterial activity. An increase therefore in the course of meningitis is a sign that the infectious process is becoming attenuated. In syphilitic meningitis the sugar content is generally increased. The sugar content of the spinal fluid may turn the scale in favor of an organic lesion when malingering is suspected.

## Archives de Médecine des Enfants, Paris

January, 1919, **22**, No. 1

*Nervous Complications of Influenza in Children. D'Espine.—p. 1.
*Infant Death Rate in the United States. P. F. Armand-Delille.—p. 9.
*Xerophthalmia in Infant from Deficient Diet. C. H. Sztark.—p. 23.
Weaning the Infant. C. H. Sztark.—p. 25.
Present Status of Fragilitas Ossium. J. Comby.—p. 31.

**Nervous Complications of Influenza in Children.**—D'Espine reports two cases in which the children of about 6 presented symptoms referable to the brain and meninges during influenza. The diagnosis of meningo-encephalitis was confirmed by the numbers of polynuclear leukocytes in the cerebrospinal fluid anl also by two symptoms—somnolency and paresis of the cranial nerves arising in the mid-brain—which are the main symptoms on which the clinical conception of lethargic encephalitis is based. As the fever dropped, an abrupt turn for the better followed, the improvement amounting to an actual resurrection. The only treatment seems to have been lumbar puncture, once in one case and three in the other. General convulsions developed in the course of established influenza in two little girls, previously healthy and the children died within twenty-four hours. The incessant clonic contractions were like electric shocks, but the lumbar fluid showed no signs of meningitis, although under high pressure. The influenzal toxin had affected the nerve centers beyond repair.

**Child Welfare Work in the United States.**—Armand-Delille has been studying in this country the ways and means adopted to reduce infant mortality, and this is his report. He was escorted on his mission by Dr. W. P. Lucas, professor of pediatrics at the University of San Francisco and chief of the Children's Bureau of the American Red Cross. Delille remarks that the child welfare work at Cleveland seems to be the best organized and shows the most complete results. In conclusion he calls attention to the visiting nurse system, the federation of welfare agencies, and the children's bureaus as worthy of special emulation.

**Xerophthalmia in Infant from One-Sided Diet.**—The child, 27 months old, had been fed exclusively for the last fifteen months on vegetable soup (*bouillon de légumes*), the family physician warning that cow's milk would kill the child. The infant often had green diarrhea and was always apathetic and drowsy. Finally xerophthalmia developed on this *diète maigre*, but it retrogressed completely by the tenth day after the bowels had been cleared with calomel, and cow's milk gradually commenced. By the third day it was taking pure cow's milk by the tablespoonful and then cod liver oil was commenced. The child gradually recuperated.

## Bulletins de la Société Médicale des Hôpitaux, Paris

Nov. 8, 1918, **42**, No. 33

*Pleural Effusion in Typhoid. A. Lemierre.—p. 1001.
Herpes Zoster with Motor Disturbance. A. Lemierre and P. Lantuéjoul.—p. 1005.
*Chronic Amebic Hepatitis. G. Paisseau and J. Hutinel.—p. 1007.
*English Anti-Influenza Vaccine. L. Rénon and R. Mignot.—p. 1011.
*Aseptic Pleural Effusion in Influenza. Richet and Barbier.—p. 1016.
*Determination of Functional Capacity of Heart. P. Merklen.—p. 1018.
*Inorganic Murmurs in New Recruits. C. Aubertin.—p. 1022.
Ascension of Patella with Myopathy. P. Descomps and others.—p. 1023.
*Injury of Frontal Lobe. D'Oelsnitz and L. Cornil.—p. 1026.
Case of Macrodactylia. Laignel-Lavastine and M. Viard.—p. 1030.
*Experimental Typhoidal Fever. G. Blanc and J. Pignot.—p. 1035.

**Purulent Pleurisy after Typhoid.**—The special feature of this case was the association in a typhoid convalescent of the gas bacillus (*B. perfringens*) and the pyocyaneus in the purulent effusion following a hemorrhagic pleural effusion consecutive to an infarct in the lung, with final recovery.

**Chronic Amebic Hepatitis.**—Paisseau and Hutinel remark that acute hepatitis and abscess of the liver, the work of the ameba, are well known but a chronic form is not generally admitted. They have encountered a number of chronic cases however, developing in successive spurts but with no tendency to suppuration. The symptoms are those of subdiaphragmatic hepatitis. Pain in the right shoulder is more common than with abscess of the liver, and may keep up for months. There are also xiphoid and sternomastoid points on the phrenic nerve which are of differential value. In some of the cases the liver signs were slight and vague, the respiratory phenomena predominating. In some patients they extended to the other lung, and the diagnosis had been bronchitis or emphysema. The general condition keeps good, as a rule, but in some there was a tendency to progressive debility. In some cases the *poussées* of the disease had returned at intervals for six months or years or nine years in one case. The disease is eminently amenable to emetin but in the older cases prolonged treatment is necessary. To ward off danger from cumulative action, they inject 8 cg. per day for six days and then wait a month before resuming with 6 cg. for eight days, keeping on with the drug in alternate months, 4 cg., for ten days, repeating this three or four times.

**The English Anti-Influenza Vaccine.**—Rénon and Mignot report eight cases of grave influenza given this vaccine. Three of the men died. The effect of the vaccine was surpassed by that of antipneumococcus serum. The vaccine contains pneumococci, influenza bacilli and streptococci.

**Aseptic Bloody Pleural Effusion in Influenza.**—Richet and Barbier have had five cases of this kind. Between the fifth and the eighth days the signs indicate a pleural effusion but puncture brings nearly pure blood. This did not seem to modify the clinical picture unfavorably, four patients rapidly recovering. The fifth succumbed to his bronchopneumonia.

**Disordered Heart Action.**—Merklen has been sending soldiers with disordered heart action to a certain reeducation center where they were given three weeks of training, walks, fetching wood and water, etc. By the end of this time a good idea has been obtained of the true functional capacity of the heart.

**Inorganic Murmurs in Young Recruits.**—Aubertin found inorganic murmurs in from 20 to 30 per cent. of the class of 1920, and he is inclined to ascribe them to emotional causes, possibly demonstrating an instability of the heart action.

**Symptoms from Injury of Frontal Lobe.**—D'Oelsnitz reports a case of injury of the left frontal region with right hemiplegia and aphasia, and a transient change in character which he describes as discordant euphoria, the man growing more contented and smiling as his condition grew worse. Pupil changes were also observed but after evacuation of a pus pocket in the frontal lobe the character and pupils returned to normal.

**Experimental Typhoidal Fever.**—Blanc and Pignot injected some guinea-pigs in the peritoneum with 3 c.c. of blood from a typhoid case with fever of 105 F. The blood drawn from the arm was inoculated at once without defibrination. In two hours the guinea-pigs' temperature dropped lower than usual and then rose above normal, reaching 104 F. one day and keeping high for several days. This result was obtained in two of the three guinea-pigs, and suggests that with this technic experimental typhoid may be realized.

## Lyon Chirurgical

July-August, 1918, **15**, No. 4

*Fractures of Jaw. L. Imbert and P. Réal.—p. 385.
*Loose Joints. L. Tavernier and Jalifier.—p. 399.
*Carrel Method. A. Rendu.—p. 426.
*Preventive Ligation After Disarticulation. C. Viannay.—p. 433.
*Capsulorrhaphy for Recurring Luxation. G. Rivière.—p. 437.
*Remote Results of Operations on Knee. R. Badolle.—p. 440.
*Tardy Arthrotomy of Knee. P. Trillat.—p. 445.
*Regeneration of Bone. G. Duhamel.—p. 449; J. P. Lamare.—p. 452.
*Washing Out Meningeal Spaces. Bellin, Aloin and Vernet.—p. 455.
*Primary Treatment of Fractured Femur. R. Leriche.—p. 489.

**Fractures of Lower Jaw.**—Imbert and Réal have charge of a center for reconstruction of the face and jaws, and they have had twenty wax casts made of the main types of fracture of the lower jaw in their more than 1,000 cases. These casts have been deposited in the military museum at Paris, but they give photographs of them here with the type of prosthesis required for each. Some of the fractures are like those observed in peace.

**Loose Joints After Resections.**—Tavernier and Jalifier have operated for flail joints in 5 elbow cases, 3 shoulder, 2 wrists and one knee case. The results were so gratifying in most cases that they now propose intervention in merely loose joints, not restricting it to actual flail joints. In some of the

joints, a wire holding the bones loosely together answered the purpose. In cases with a gap in the bone, an autograft, held in place with wire, gave a solid joint (wrist) with good functional results. With the knee, solid ankylosis is all that it is possible to attain.

**Carrel's Treatment of Fistulas, etc.**—Rendu's experience at a hospital in the rear with 200 cases shows that the Carrel method is for immediate application after the injury. Later than this, it may give good results in superficial injuries, but it cannot be trusted for deep bone and joint processes. It failed invariably in femur fracture cases, in osteitis, osteomyelitis and their fistulas. The Carrel tubes do not provide sufficiently for drainage. This must always be ensured at the lowest point possible. The skin must be protected with petrolatum, and hemostasis must be ensured beforehand, as the antiseptic fluid dissolves clots and may start bleeding anew.

**Hemorrhage After Disarticulation of Shoulder.**—Viannay refers to infected cases. By preventive ligation of the subclavian a few days after the operation, he was able to forestall the secondary hemorrhage which had proved fatal in some of his cases.

**Recurring Dislocation of Shoulder.**—The dislocation had recurred nine times during the year, but no cause could be discovered except that the shoulder was a little loose. This was corrected by taking up folds in the abnormally large and loose capsule of the joint with interrupted sutures, passing the threads through the subscapular muscle. The intervention was a complete success; the young man was soon drilling with the other recruits.

**Arthrotomy of the Knee.**—Badolle emphasizes that at every operation on the knee the ultimate orthopedic result should always guide the surgeon. Only a typical resection at first ensures a solid, usable knee.

**Tardy Arthrotomy with Primary Suture.**—Trillat reports four cases in which an interval of from twenty-seven to thirty-one hours had elapsed after the injury before the operation on the knee. He sutured at once, although infection seemed to be installed, and healing occurred by primary intention in each case.

**Regeneration of Bone.**—In Duhamel's case a gap of 5 cm. in the shaft of the humerus became regenerated within two months, without any shortening of the arm. The fresh periosteum (ten hours) lined with particles of bone left from the sequestrectomy, shaved off with Ollier's sharp bone-scraper, and sheltered by the primary suture against mechanical, chemical or inflammatory irritations, was able to reconstruct this large shaft in this short period. He scrapes the sequester with a sharp rasp, the sequester held with forceps, and lines the periosteum with these scraps of bone. Lamare's success was equally good after a similar subperiosteal sequestrectomy. The gap was 2 to 5 cm. long in the tibia. Consolidation was complete in eight months.

**Washing Out the Meningeal Cavities.**—Bellin and his co-workers recall that diffuse meningitis originating in the ear—streptococcus meningitis—is often fatal, and heroic measures are justified. In a case described, osteitis of the tip of the petrous bone led to generalized meningitis. They punctured the lateral ventricle, after lumbar puncture, and then injected saline or antistreptococcus serum, tinted with methylene blue, into the lumbar trocar. The fluid emerged in the ventricle, thus rinsing out the meningeal cavity on its way. This is the fourth case on record of this lavage of the meningeal cavities, and the immediate benefit was most striking. The improvement lasted only a few days, and repetition of the lavage proved ineffectual, as the osteitis at this point had escaped discovery and had continued its course. Of the four cases on record, one may be considered a success. In the others, conditions outside of the meninges precluded recovery.

Experiments on the cadaver have confirmed the simplicity and feasibility of this rinsing out the meningeal cavities. General anesthesia is not necessary. From 100 to 400 gm. of fluid can thus be sent through from the lumbar puncture needle to the ventricular puncture needle, or vice versa, repeated as needed. A mechanical and a biologic effect can be realized simultaneously by combining saline with the special antiserum or some weak antiseptic. The procedure is not dangerous, they say, if the fluid is injected slowly, without pressure. In their case, slight transient dyspnea was the only by-effect. It probably corresponded to the passage of the fluid past the medulla oblongata. The benefit from the lavage amounted, they add, to an actual resurrection for four days. The one successful case was a meningitis after trephining. The micrococcus involved was the *M. pharyngis cinereus*. They punctured the ventricle through a small trephining opening, 3 cm. above the meatus of the ear, introducing the needle perpendicular to the external surface of the brain, to a depth of 3 cm., on a level with the temporal cornu (second temporal circonvolution).

**Fracture of the Femur.**—Leriche declares that it is the lesions of the soft parts, rather than of the bone, that render the prognosis grave, and treatment should be guided by this fact, as he describes in detail.

## Lyon Médical

December, 1918, **127**, No. 12

After Victory! B. Lyonnet.—p. 529.
*False Appendicitis in Influenza. E. Villard.—p. 534.
Combined Wheeled Stretcher and Table. J. Molinié.—p. 543.
Malaria in Morocco. L. Langeron.—p. 547.

**False Appendicitis in Influenza.**—Villard has encountered several cases that presented the clinical picture of acute appendicitis and an operation seemed urgent at first. Study of the cases, however, showed that general symptoms, chill, malaise and feeling of distress had occurred hours before any local symptoms had developed. The local pain, besides, was more epigastric than appendicular, and it was paroxysmal instead of constant. The temperature curve resembles that with pneumonia and the pulse keeps relatively slow, in marked contrast to the high fever. The patients affected had all been in contact with influenza cases and the onset was typical of grippe. The abdomen is distended and palpation is painful throughout, most marked in the right iliac fossa. Vomiting follows and symptoms of intestinal obstruction. Respiration is regular and the tongue does not look like the appendicitis tongue. In twenty-four hours the symptomatic picture is complete. In all his cases the symptoms gradually subsided under treatment. The persistence of the asthenia and fever and the development later of pulmonary disturbances of the bronchopneumonic form confirmed the diagnosis of influenza. An operation is not only needless, but liable to be dangerous from the depressing effect of the anesthetic and its influence on the air passages. Enemas of boiled water with or without glycerin or oil and ice to the abdomen are about all that is needed.

## Paris Médical

Jan. 4, 1919, **9**, No. 1

*Dyspepsia in Infants from Cow's Milk. A. B. Marfan.—p. 2.
*The Tuberculosis Preventorium for Children. Guinon.—p. 10.
Hygiene of Contagious Diseases. J. Renault.—p. 12.
*Digestive Disturbances in Infants. E. Terrien.—p. 17.
*Tabes in Children. P. Lereboullet and J. Mouzon.—p. 20.
Tin in Treatment of Mammitis. E. Chomé and A. Frouin.—p. 24.
*Treatment of Scoliosis. Joland.—p. 25.

**Dyspepsia in Infants from Cow's Milk.**—Marfan emphasizes the necessity for being on the alert to detect digestive disturbances which sometimes occur when cow's milk is substituted for breast milk. These disturbances often prove the first link in the chain which leads to athrepsia. The principal symptom is the putty stool. These stools may be normal in number but they look like soft putty or clay, and they scarcely soil the diaper. Scraps of mucus on the surface, the larger bulk, the strongly alkaline reaction, and the ammoniacal and putrid odor are special features. There is no diarrhea but there may be a tendency to constipation. The stools show an excess of alkaline-earthy soaps and of minerals, evidences of incomplete digestion of casein, and the bile pigments are present in the form of urobilinogen.

The outcome is generally favorable for infants over 6 months old, but younger than this, if breast milk and hygienic conditions are not available, especially if there is an inherited taint, the prognosis is almost inevitably fatal. Dropping the cow's milk in time puts an end to this dyspepsia from cow's milk, and sometimes all disturbances cease when the milk is diluted further.

Even when an infant is apparently thriving on cow's milk, the character of its stools, the multiple bacterial flora and high mineral content, show that the state of health is very close to the borderline of disease. The defective utilization of fat is shown by the insoluble calcium and magnesium soaps in the stools, the fat in them being thus lost for nutrition. There may also be some intoxication from absorption of the products of putrefaction. In treatment, if breast milk is not available, asses' milk is the next choice, and failing this, modified milk, such as buttermilk, condensed or sweetened skimmed milk. The digestive apparatus must be given a chance to rest, beginning with small amounts even of breast milk. The casein in cow's milk must be rendered easier of digestion, by cooking or enzyme action. The fat in the milk should be reduced, and some easily digested carbohydrate should be added. He gives minute directions for the diet under 4 or 6 months and above this age, warning against the tendency to give too much starchy foods to older infants. Otherwise starch dyspepsia follows on the cow's milk dyspepsia.

**Antituberculosis Dispensary for Children.**—Guinon insists that the preventorium should be for the entire family, not adults alone or children.

**Digestive Disturbances in Infants.**—Terrien warns that the new conceptions in regard to dyspepsia in infants are new only in name. An infant who is digesting defectively a certain ration of milk, digests it still more defectively when the amounts given are increased. This is a natural consequence that everyone knows, but Finkelstein has written reams about it as the "paradoxic reaction." The famous "albumin milk" is not keeping its promise; to feed casein and no carbohydrate is not tolerated by the organism, and Finkelstein and Combe soon advised addition of maltose, 30 gm. to the liter, while Combe adds up to 8 per cent. Thus modified, the "albumin milk" is practically the old familiar mixture of malt extract and curds (*bouillie de malt et lait caillé*).

**Tabes in Children.**—Lereboullet and Mouzon report a case of tabes from inherited syphilis in a boy of 15, who has been under observation for two years. The symptoms were not very pronounced but they were unmistakable. They began with right ocular paralysis and ptosis, and a violent cramp in the right leg lasting all day. The Argyll Robertson sign, the abnormal reflexes, and lymphocytosis in the spinal fluid confirmed the diagnosis. Under treatment the symptoms subsided except for the rigidity of the pupils and the loss of the tendon reflexes on both sides. The Wassermann reaction was positive as also in the lad's mother and younger brother. Two similar cases are mentioned further, the ocular paralysis and abolition of the tendon reflexes being accompanied by a positive seroreaction. The favorable modification under specific treatment confirms the diagnosis, and suggests that possibly tabes in adults may in certain cases be due to inherited syphilis. More careful examination of children might reveal this tendency to tabes in time to ward off serious trouble later. The alarm should be sounded with persisting migraine, tendency to spasmophilia, nocturnal incontinence of urine, simple transient "absences" as manifestations of abortive epileptiform seizures, inability to keep up with his class in school, tics, a little choreic instability, disturbance in vision, or cramps in one limb. In their patient there was no disturbance in gait, even with the eyes closed.

**Gymnastic Exercises in Treatment of Scoliosis.**—Joland reaffirms the advantages of the proper gymnastic exercises in treatment of scoliosis as the only means to reestablish the normal balance of the spine, suppressing the causes of asymmetry and combating the cause of the deformity. They should be kept up at home for years. The shape of the bone is secondary to the function. Nageotte has reported the case of a girl with one leg left 4 cm. shorter than the other after an accident. The scoliosis induced to keep from falling resulted in modifying the shape of certain vertebrae to correspond.

## Presse Médicale, Paris

Dec. 19, 1918, **26**, No. 70

*Arteriovenous Aneurysms. L. Chevrier.—p. 645.
*Symptoms in Arm after Aerial Shock. P. Sollier and P. Courbon.—p. 646.
Chancre with Fuso-Spirilla Association. Payenneville.—p. 647.

Dec. 23, 1918, **26**, No. 71

Opening Course on Dermatology and Syphilis. Jeanselme.—p. 653.
*Grafts of Dead Nerve Tissue. L. Sencert.—p. 656.
*Paradoxic Electric Contraction. R. G. Palmes and A. Hanns.—p. 659.
*Lethargic Encephalitis. Chartier.—p. 660.
General Anesthesia and the Circulatory Apparatus. L. Binet.—p. 661.

**Arteriovenous Aneurysms.**—Chevrier reviews his extensive experience with the clinical and the anatomic transformations of arteriovenous aneurysms. In two of his cases the arteriovenous aneurysm became transformed into an arterial form, and this retrogressed spontaneously and totally in one case, partially in the other. The clinical and the anatomic transformation do not always apparently coincide.

**Edema of Hand and Arm.**—Sollier and Courbon have recently encountered four cases in which a seton bullet wound in the back of the neck was followed by edema of the hand and fingers, with mydriasis suggesting pressure on the sympathetic nerve. The nerve could not have been directly injured by the projectile.

**Grafts of Dead Nerve Tissue.**—Sencert discusses the preferable technic for bridging gaps in nerves in a way to permit regeneration, and describes favorable results in his fifteen operations of the kind with the *hétérogreffe morte*. His first operation was done in March, 1918, and the interval since has been too short for decisive judgment as to the functional outcome. But in two of the cases there is a beginning of functional restoration which is most encouraging, and in one other case an operation, less than three months later, revealed that the continuity of the nerve has been completely reestablished with no cicatricial tissue production. Illustrations of this case are given. The sciatic nerve from a calf was inserted to bridge a gap of 2 cm. in the median nerve. The bundles of nerve fibers are approximated and sutured separately, a "fascicular graft." The technic is described in detail.

**Paradoxic Electric Contraction.**—Palmes and Hanns noted this paradoxic contraction by unipolar tetanization in cases of injury of peripheral nerves, central lesions and reflex disturbances, but never in purely psychic motor disturbance.

**Lethargic Encephalitis.**—Chartier insists that all other forms of encephalitis should be distinguished from this "lethargic" type, before we can accept it as a new entity. He recalls further that Leichtenstein and Strümpell in 1892, called attention to the frequent grippal origin of acute hemorrhagic encephalitis. F. Raymond also has emphasized "that in epidemics of influenza some cases are encountered in which from the very first the patients present symptoms of acute encephalitis with the signs of grippal infection."

## Progrès Médical, Paris

Dec. 14, 1918, **33**, No. 50

*Camphorated Oil in Influenza. Loeper and Fumouze.—p. 417.
Clinical Aspect of Streptococcus Wounds. J. Fiévez.—p. 418.

Dec. 21, 1918, **33**, No. 51

Treatment of Influenza. Loeper and Grosdidier.—p. 427.
*Hexamethylenamin in Pleurisy. Loeper and Grosdidier.—p. 427.
Treatment of War Wounds. L. C. Bailleul and G. Worms.—p. 428.

**Intravenous Injections of Camphorated Oil in Influenza.**—Loeper and Fumouze refer to the form of influenza characterized by asphyxia, a vaso-paralytic or vago-paralytic form. In the last two months this grave form amounted to 10 per cent. of their total cases. With venesection, abundant and repeated, followed by subcutaneous or intramuscular injection of sugar or epinephrin in physiologic solutions, and

daily intravenous injection of 2 c.c. of 10 per cent. camphorated oil, from 55 to 60 per cent. of their thirty-eight patients in this grave group recovered.

**Hexamethylenamin by the Vein in Pleurisy.**—Loeper and Grosdidier report that they have applied this treatment in thirty-two cases of pleurisy, and recovery followed in from seven to twenty-five days with from five to ten or twelve injections. They say that it seems to promote the diuresis and the resolution of the effusion, while the accelerated elimination of toxic products aids in reducing the fever.

## Revue Médicale de la Suisse Romande, Geneva

December, 1918, **38**, No. 12

*Vicious Circle After Gastro-Enterostomy. H. Vulliet.—p. 673.
Digitalis Preparation Effectual by Rectum. J. Morin.—p. 694.
*Malignant Influenza. G. A. Krafft.—p. 703.

**The Vicious Circle After Gastro-Enterostomy.**—Vulliet reports eight cases with illustrations to show the various mishaps liable with posterior gastro-enterostomy. In three out of four of the cases a secondary (anterior) gastro-enterostomy restored clinically normal conditions. Mobilization of the left portion of the duodenum is susceptible of rendering real service in gastro-intestinal surgery. In case of the vicious circle, it renders entero-anastomosis possible and this puts an end to the vicious circle. In fact, without it, entero-anastomosis is scarcely possible, after a correct posterior retrocolic enterostomy. It is a simple matter on the cadaver but may be difficult and risky in the living body. By left mobilization he means severing the duodenum at the pylorus. This releases the afferent loop of the duodenum in the gastro-enterostomy, and this pylorus end is swung around and sutured to the left aspect of the efferent loop.

A new anterior gastro-enterostomy is simple, easy and rapid and answers the desired purpose, breaking up the vicious circle equally as effectually. In some of the cases he describes, the stomach did not function well and evacuation was sluggish by any route. His one failure was in a psychopath with localization in the stomach. Only transient benefit was realized, and the woman of 45 died in a gradual decline three years later. Vulliet exclaims on the lack of any certain means of distinguishing between such cases and those in which a stomach lesion escapes our means of investigation and yet could be repaired by an operation.

**Malignant Influenza in Swiss Troop.**—Krafft says that 6 per cent. died of the 500 men in a Swiss troop stationed at a remote gun range, all but 20 of whom had contracted influenza. The influenza was often of a malignant type, with intense cyanosis. The measures which proved most effectual were venesection plus transfusion, and, at the beginning, 0.15 neo-arsphenamin. This had no action when the disease was at its height, but towards the close it displayed a very useful action again. Opium was proscribed throughout, and no food was given to tax the digestion while the influenza lasted, but sugar solution was injected freely.

## Correspondenz-Blatt für Schweizer Aerzte, Basel

Dec. 21, 1918, **48**, No. 51

*Severe Chronic Diarrhea. M. Düring.—p. 1697.
Traumatic Luxation of Ulnar Nerve. J. Dubs.—p. 1711.
*Transfusion of Blood after Abdominal Gunshot Wound. A. Fonio.—p. 1719.

**Severe Chronic Diarrhea.**—Düring describes cases, in a girl of 10 and three adults, which in many points resemble the severe alimentary diarrhea of infants. One man of 44, a prisoner of war in Germany, developed severe chronic diarrhea with great depression, but no pains or fever. No benefit was derived from tannin or opium preparations or charcoal. A bleeding bunch in the rectum was assumed to be cancer and the man was sent to Switzerland to be interned, where the rectal lesion subsided under silver nitrate. In all the cases in this group there was a history from youth of substandard digestive functioning, and the patients showed a tendency to anemia, meteorism in the upper abdomen, and a gray tint of the skin. The stools in each case showed defective digestion of carbohydrates, the high acidity testifying to abnormal fermentation, which was responsible for the meteorism and the excessive peristalsis. The correctness of this assumption was demonstrated in each case by the benefit from dietetic restrictions, avoiding carbohydrates. Any meal of potatoes or tapioca was liable to bring back the diarrhea. Carbohydrates have to be banished as completely as from the diet of diabetics. Furtl.er all cellulose-containing foods have to be scrupulously avoided. Lean meat, fish, eggs, cheese and cane sugar have to be the sole reliance. Coffee and tea with cream can be allowed, but no milk on account of its lactic acid content. Kefir is very useful. It is better to warm it. In the very severe cases, albumin milk may have to be resorted to.

He begins treatment with a purge, allowing only black tea, and for two or three days only fluid food. He warns expressly against gruels. The fluid stools soon stop, and meat and eggs soon bring putrefaction bacteria to predominate. In a few days the stools become formed and alkaline. In obstinate cases, calcium chlorid may hasten this transformation of the reaction. The amounts of the foods allowed can be rapidly increased and after a few weeks, zwieback and flour dishes may be cautiously allowed under constant supervision. Noodles, grits and rice may be taken without harm in time, but the intolerance for potato long persists, and it may bring on the gravest relapses. Institutional treatment is almost indispensable, even more so than for the graver cases of diabetes. Medicinal treatment is of little use except that opium may aid at first in checking the exaggerated peristalsis. With ulcerative colitis it can be given with belladonna by the rectum. Morphin may be useful to quiet the excited patient. After recovery, the patients long have to beware of foods containing cellulose. A limit of tolerance is finally reached, and keeping within this they have no further trouble. His patients in this group have been free from all disturbances for months.

**Transfusion of Blood After Abdominal Injury.**—Fonio reports the case of a young hunter who took up his gun by the muzzle and shot himself in the ileocecal region. The laparotomy three hours later showed fourteen perforations of the small intestine. The 95 cm. segment of intestine with twelve perforations and two holes in the mesentery was resected, and the two other perforations were sutured. The abdomen was flushed with saline until it came away clear. After the operation, 500 c.c. of saline with 7 drops of epinephrin were infused, the legs wound and raised, and tetanus serum, camphor, etc., injected. Six hours later, the radial pulse having become imperceptible, 250 c.c. blood from the patient's sister were transfused, and by the eighth day the young man was ready to return to work. He would undoubtedly have succumbed if it had not been for the transfusion of blood. The transfusion was done by the citrated method. The 250 c.c. blood sufficed to restore the pulse permanently. Fonio explains this benefit as due to the breaking up of the vicious circle by the influx of fresh blood supplying the heart muscle with blood through the coronary circulation, and thus giving it the nourishment needed to enable it to resume its task. This in turn supplied all the organs with nourishment and started normal functioning anew throughout the organism. He advises continuing the transfusion until the pulse is full and strong again. This occurred with 250 c.c. in his case. The patient vomited afterward, and albumin and casts appeared in the urine. Healthy, robust donors closely related to the patient, transfusion of not over 250 c.c., and waiting to note the effect of this, will ward off injurious by-effects. In urgent cases even the general practitioner need not hesitate to apply it; to facilitate this, he gives illustrations of the details of the technic. He ascribes the priority to Agote.

## Gazzetta degli Ospedali e delle Cliniche, Milan

Oct. 3, 6, 10, 1918, **39**, No. 79-81

Significance of Bradycardia in Convalescence from Lobar Pneumonia. G. Binetti.—p. 735.

Oct. 13, 17, 20, 1918, **39**, No. 82-84

Prognosis in Influenza. G. Stradiotti.—p. 742.

Oct. 24, 27, 31, 1918, **39**, No. 85-87

*Slight Chronic Fever Traced to Pharynx. U. Baccarani.—p. 749.

**Chronic Fever of Pharyngeal Origin.**—In the three cases described, a slight fever keeping up for months was finally traced, by exclusion, to chronic inflammation in the pharynx not severe enough to have attracted the patient's attention. In the three cases reported the appendix was tender and appendicectomy had been advised but the subsidence of the fever under treatment of the throat alone demonstrated that the appendix was not the main factor. The general health and the appetite kept good and there was nothing to suggest tuberculosis otherwise. No special germs could be cultivated from the throat.

## Riforma Medica, Naples

Dec. 7, 1918, **34**, No. 49

Dissociated Median Paralysis. L. Torraca.—p. 970.
*Throat Secretions in Influenza. S. Musu and C. Russo.—p. 972.
Hemorrhagic Syndromes in Influenza. G. Oldano.—p. 973.
Influenza. A. Monti.—p. 974.
Different Icterohemorrhagic Spirochetoses. G. Molinari.—p. 978.
*Right of Injured Workmen and Soldiers to Refuse Operation. E. Aievoli.—p. 980.

**Nose and Throat Secretion in Influenza.**—Musu and Russo state that in seventy-one cases of influenza in soldiers, sailors and civilians, the germ isolated recently by Scalone was found in the tonsils or nasopharynx in sixty. It was in pure culture in fifty-five. He calls it the *Micrococcus metatetragenus*. In eleven cases only streptococci and staphylococci could be cultivated.

**Right of Injured Soldiers and Workmen to Refuse an Operation.**—Aievoli refers to treatment predominantly surgical which would presumably restore greater earning power. He discusses the views advanced by competent authorities in Italy, France and elsewhere. The only solution, he says, seems to be an uplift of the psychologic reasoning of the classes involved. He warns, however, in conclusion against allowing correcting surgery and orthopedic treatment to be in the hands of any but the most competent, who have long given evidence of a "strict surgical conscience."

## Brazil-Medico, Rio de Janeiro

Nov. 2, 1918, **32**, No. 44

Brazilian Gregarinas. (Bothriopsis Oswaldocruzi n. sp.), G. Hasselmann.—p. 345.
Lepra Bacillus Found in Ticks. M. Rudolph.—p. 345.
Ankylostomiasis in Brazilian Navy. B. de Figueiredo.—p. 345. Conc'n.

Nov. 9, 1918, **32**, No. 45

Autogenous and Polyvalent Vaccine Therapy plus Sugar Injections in Treatment of Influenza. H. de B. Aragão.—p. 353.

## Medicina Ibera, Madrid

Oct. 19, 1918, **5**, No. 50

Surgical Treatment of Pulmonary Tuberculosis. J. de Palacios y Olmedo.—p. 48.
A Needle in the Finger. L. S. Tamargo.—p. 50.
Minor Skin Lesions. Sicilia.—p. 51.

Oct. 26, 1918, **5**, No. 51

Exostosis on Jaw. C. Roe.—p. 74.
Interstitial Hemorrhages After Intramuscular Injections. E. A. Sainz de Aja.—p. 75.
Iodin in Therapeutics. VII. A. S. Alvarez.—p. 76.

## Progresos de la Clinica, Madrid

November, 1918, **6**, No. 71

*Architecture of the Pelvis in Man. M. Serés.—p. 265.
*The Retrococcygeal Diverticulum. D. V. Juaristi.—p. 311.
*Stenosis of Urethra. S. Pascual.—p. 322.

**Architecture of the Pelvis.**—Serés' long article has fifty-three illustrations showing the various stages of development of the pelvis and the soft parts and spaces, and pointing to more effectual routes for drainage, etc.

**Retrococcygeal Diverticulum.**—Juaristi has encountered a number of curious malformations resulting from the persistence of embryonal dispcsition of the terminal spinal cord. In some cases there was a depression or invagination of the skin over the coccyx, sometimes entailing a fistula; in other cases causing neuralgia, paralysis, or enuresis from dragging on the lower nerve roots. The diagnosis is simple and excision promptly cures the disturbances. Twelve illustrations show the different types.

**Stenosis of the Urethra.**—Pascual warns that retention should be ascertained by palpation of the bladder, not by introducing the catheter as the first step. And when the catheter is introduced, it should be a Guyon explorer, not the evacuating catheter. The stenosis thus ascertained, sitz or general hot baths, belladonna rectal suppositories, hot enemas and cataplasms with laudanum, in the hypogastric region, may induce micturition. If not, and if the stenosis is impassible, then the bladder must be punctured, which, he declares, is an absolutely harmless procedure and can be repeated many times. After the congestion has subsided, the stenosis may allow the passage of the catheter. If not, surgical measures are necessary as he describes in detail.

## Siglo Medico, Madrid

Oct. 19, 1918, **65**, No. 3384

Clinical Conception of Bronchitis. S. Hergueta.—p. 849.
Forensic Importance of Finger Prints. A. Cortezo Collantes.—p. 852.
Incompatibility of Quinin and Acetyl-salicylic Acid. J. Luis Yagüe y Espinosa.—p. 856.

## Grèce Médicale, Athens

January to June, 1918, **20**, Nos. 1 to 12. French Supplement to Iatriki Proodos

*Adiposis Dolorosa. J. Cecikas.—p. 1.
*Effectual Treatment of Malaria. J. P. Cardamatis.—p. 5.
Rheumatismal Origin of Certain Heart Symptoms. Parturier and Maroulis.—p. 18.

**Cure of Adiposis Dolorosa.**—Cecikas reports a case in a man of 32, married for six months, which, he thinks, throws light on the etiology of the disease. The pressure of the man's body against his desk explained the unusual location of the lipomas, and the immediate effect of an injection of pituitary extract on retention of urine confirmed the influence of the pituitary on the innervation of the bladder, but the primal factor in Dercum's disease seems to be some abnormal or lacking hormone from the organs of reproduction. This seems to upset the normal balance in the chromaffine system. His patient was clinically cured, even to the retrogression of the lipomas, by systematic treatment with extract of thyroid 1 part; extract of pituitary, 1 part, and of ovary 2 parts, supplemented by a vegetable diet and exercise in the country. Whenever this treatment was interrupted, the whole set of symptoms returned, even including some of the tumors. The patient learned to make his organotherapeutic products himself, making a cold extract of thyroid and testicles, 1:4, from sheep 1 or 2 years old. (Extraction cold; 50 c.c.; phenol, 0.05.) He took a teaspoonful of this extract morning and evening in warm soup. Cecikas recalls that Dercum in describing his first case of adiposis dolorosa noted its connection with the thyroid.

**Effectual Treatment of Malaria.**—Cardamatis insists that to give quinin in an ineffectual manner not only perpetuates malaria but drives the public to quacks. He has worked out a technic which has radically cured 98 per cent. of all types of malaria, and his experience and experimental research on the human have absolutely confirmed its efficacy, he reiterates. He has been in charge for many years of the state campaigns against endemic malaria at different points in Greece, and also of the campaigns under the auspices of the Hellenic Antimalaria League. Tens of thousands of malaria subjects have passed through his hands and been followed long enough for the ultimate outcome to be known. He declares that administration of quinin by the mouth is as effectual as by injection. His technic was worked out by comparative study of the effects on different series of six or eight groups of up to sixty persons each, with subgroups of eighteen with one of the three types of hematozoa in the blood, and two with mixed infection. The results in each series are grouped in a table for comparison. The effectual method proved to be as follows: He begins the course with 1.60 gm. at the first moment of defervescence, during the sweating stage. This dose is divided in two parts, taken at a half hour interval. After this, for eleven days, 1.50 gm. is given, seven or eight hours before the attack. Then suspension for four days, after

which 1 gm. is taken each evening, not long before retiring, and this is repeated for eight consecutive days. Then suspension for a week, after which 1 gm. is taken at bedtime the sixth and seventh days of each week. This procedure was rigorously followed for two months in the case of vivax infection, benign tertian, and for three months with praecox or mixed tertian. After this, if the mosquito season is on, he advises preventive treatment, namely, the first and the second days 0.35 gm. and the third day 0.50 or 0.60 gm.

This whole procedure applied systematically and rigorously for several years has given results, he says, *littéralement miraculeux*, far superior to anything else known to date. That is, the radical cures have amounted to 98 per cent. By giving the quinin exactly from eight to seven hours before the attack, the largest quantity is absorbed just as the schizogony of the hematozoa reaches its highest point. Above the age of 17 the dosage is the same as for adults. For young infants he gives one eighth of the doses; from 1 to 2 years of age, one fourth; from 4 to 5, three eighths; from 6 to 9, one half; from 10 to 13, five eighths, and from 14 to 16, six eighths. In the exceptionally resistant cases he doubled the standard doses or took other exceptional means of quininization. Persons inoculated with infected anopheles and then given 0.40 gm. of quinin every day with 0.60 every third day, during the entire summer, never developed any symptoms of malaria. On the other hand, the same mosquitoes biting ten other persons who took afterward 1 gm. quinin for seven days, gave rise to malaria in 33 per cent. of the subjects, the ague developing in two or three weeks, with the praecox in the blood. The quinin used was the 0.2 gm. tablets supplied by the state.

## Medical Journal of Siamese Red Cross, Bangkok

August, 1918, **1**, No. 2

*Case of Cesarean Section. H. S. Bholaraksha.—p. 66.
Sporadic Cases of Diphtheria at Bangkok. L. Robert.—p. 71.
*Alternating Amebic Appendicitis and Hepatitis. L. Robert and H. Sakda.—p. 79.

**Cesarean Section.**—The case described is the first known instance of cesarean section on a living woman performed in Siam.

**Amebic Hepatitis and Appendicitis.**—Robert and Sakda report the case of a medical army officer who developed dysentery apparently cured by emetin. Three years later, symptoms of appendicitis developed, but soon subsided as symptoms of hepatitis became manifest. Puncture of the liver showed amebas and colon bacilli in the pus. Amebas were then found in the stools. As the hepatitis subsided after clearing out the pus pocket, the appendicitis flared up again, and amebas and colon bacilli were found in the appendicitic pus. After this was cleared out complete clinical recovery followed. The ameba alone does not seem able to set up appendicitis, but it prepares the soil for the colon bacillus to start suppuration. The characteristic *balancement* between the liver and the intestinal lesions was marked in this case.

## Nederlandsch Tijdschrift v. Geneesk., Amsterdam

Nov. 30, 1918, **2**, No. 22

Reform in Medical Education. G. van Rijnberk.—p. 1731.
Nephritis in Children. Schippers and de Lange.—p. 1733. Cont'n.
*Congenital Pigmentation of Cornea. P. J. Waardenburg.—p. 1741.
*Urticaria and Thyroid Functioning. H. Bolten.—p. 1747.

**Congenital Pigmentation of the Cornea.**—Waardenburg reports several cases of melanosis of the cornea. He is inclined to regard the pigmentation as merely a displacement of pigment, not an actual melanosis. No instance is known of cancer developing in an eye thus affected. He saw no evidences of a familial or hereditary character of the anomaly, and it did not seem to interfere with vision. The symmetrical pigmentation in one or both eyes was in the form of dark brown stripes, horizontal or vertical, or a stippled area. The iris was grey or brown.

**Urticaria as Sign of Thyroid Deficiency.**—Bolten describes four cases which apparently sustain his assumption that urticaria in some cases is due to thyroid insufficiency, inducing hypotony of the vegetative nervous system. One woman of 28 with signs of defective thyroid functioning developed transient urticaria after much muscular exertion, and also after emotional stress and during menstruation. In a girl of 19 similar trophic vasomotor phenomena were accompanied by symptoms of beginning epilepsy. After a brief course of thyroid treatment, there seemed to be no further tendency to urticaria. A woman of 30 had had slight exophthalmic goiter eight years before, and since then had developed transient urticaria whenever she was much fatigued or jealous. It used to last several days, but now she takes a tablet of thyroid extract when the urticaria appears, and it subsides at once. In a fourth case the symptoms indicate a high degree of vagotony. After fatigue or emotional stress, urticaria develops and sometimes a fleeting edema of the lips and eyelids.

He thinks that the term vagotony is too restricted; the irritability and weakness involve the whole of the sympathetic system, not the vagus alone. Urticaria sometimes accompanies various chronic conditions such as blood and liver disease, diabetes, tuberculosis, etc., in which the vegetative nervous system and the thyroid evidently have been damaged by the chronic ailment. For these and other reasons cited, he reiterates that urticaria is presumably a manifestation of hypotony of the vegetative nervous system, either congenital or the result of acquired thyroid insufficiency. The urticaria following the use of certain drugs, foods, etc., is explained by the same mechanism. The benefit from thyroid treatment is the most convincing support of this assumption in regard to urticaria—cutaneous asthma.

## Hygiea, Stockholm

Dec. 14, 1918, **80**, No. 23

Study of Morphology of Posterior Aspect of the Lower Jaw in Median Region. G. Backman.—p. 1345.

## Ugeskrift for Læger, Copenhagen

Dec. 5, 1918, **80**, No. 49

Fatal Hemorrhage from Umbilical Cord. G. Jørgensen.—p. 1929.
Epistaxis with Influenza. O. Hamburger.—p. 1936.

Dec. 12, 1918, **80**, No. 50

*Conservative Treatment of Surgical Tuberculosis. R. Hertz.—p. 1967.
Case of Pulmonary Actinomycosis. A. M. Andersen.—p. 1975.
Influenza in Soldiers. T. Olsen.—p. 1980.
Necropsy Findings in Case of Uveo-Parotid Fever. S. Bang.—p. 1983.
Epidemic Scabies. O. Haslund.—p. 1985.

**Conservative Treatment of Surgical Tuberculosis.**—Hertz is in charge of a sea coast sanatorium for children in Denmark, and for the last five years he has been giving heliotherapy a very prominent place in the treatment of tuberculous processes in bones and joints. The sun baths are given for about six hours a day as the children recline or play or stroll about, unclothed, in the open air. For stormy weather there is a large hall like a greenhouse. In winter it can be warmed. The healthier children also play about or recline in their living rooms for several hours, unclothed, before the open windows. The reflection from the water of the bay enhances the effect of the sunlight. The children seem to bear low temperatures better when they are well tanned. At the Grimmenstein sanatorium near by, children of 4 years old and over bear it perfectly to lie unclothed in the open air at a temperatur of 6 Réamur (45½ F.) As there is so much strong wind at the sanatorium in his charge, he has a partial shelter for the children. He uses a quartz lamp for the weaklier children and has had good experiences with it. Rollier has reported from Leysin 79.3 per cent. cured of his spondylitis cases; 4.1 per cent. died. Hertz, with heliotherapy on the Danish sea coast, very nearly equalled this, with his 75 per cent. cured of 271 cases; 90 per cent. cured in 139 cases of coxitis; 97 per cent. cured of 74 cases of gonitis; 97 per cent. cured of 29 cases of spina ventosa; 92 per cent. in 50 cases of ostitis; 94 per cent. of 61 cases of mesenteric tuberculosis; 95 per cent. of 248 cases of adenitis, and 73 per cent. of the 11 cases of multiple bone and joint lesions. The cure has been permanent in a much larger number of cases, he asserts, than with the best surgical statistics, confirming Calot's dictum on surgical tuberculosis, *"Le bistouri, c'est l'ennemi."*